

United States Court of Appeals for the Federal Circuit

APPLE INC. AND NEXT SOFTWARE, INC.
(formerly known as NeXT Computer, Inc.),
Plaintiffs-Appellants,

v.

MOTOROLA, INC. (now known as Motorola Solu-
tions, Inc.) AND MOTOROLA MOBILITY, INC.,
Defendants-Cross Appellants.

2012-1548, -1549

Appeals from the United States District Court for the
Northern District of Illinois in No. 11-CV-8540, Circuit
Judge Richard A. Posner.

Decided: April 25, 2014

E. JOSHUA ROSENKRANZ, Orrick, Herrington & Sutcliffe LLP, of New York, New York, argued for plaintiffs-appellants. With him on the brief were MARK S. DAVIES, RACHEL M. MCKENZIE and T. VANN PEARCE, JR. of Washington, DC; and MATTHEW D. POWERS, Tensegrity Law Group LLP, of Redwood Shores, California. Of counsel was KATHERINE M. KOPP, Orrick, Herrington & Sutcliffe LLP, of Washington, DC.

DAVID A. NELSON, Quinn Emanuel Urquhart & Sullivan, LLP, argued for defendants-cross appellants. With him on the brief were STEPHEN A. SWEDLOW; BRIAN C. CANNON, of Redwood Shores, California; KATHLEEN M. SULLIVAN and EDWARD J. DEFRANCO, of New York, New York; and CHARLES K. VERHOEVEN, of San Francisco, California. Of counsel were RAYMOND N. NIMROD and DAVID ELIHU, of New York, New York; and AMANDA SCOTT WILLIAMSON, of Chicago, Illinois.

JOEL DAVIDOW, Cuneo, Gilbert & LaDuca, LLP, of Washington, DC, for amicus curiae The American Antitrust Institute. With him on the brief was ROBERT J. CYNKAR.

CHARLES W. SHIFLEY, Banner & Witcoff, Ltd., of Chicago, Illinois, for amicus curiae The Intellectual Property Law Association of Chicago.

DEBRA J. MCCOMAS, Haynes and Boone, LLP, of Dallas, Texas, for amici curiae Altera Corporation, et al. With her on the brief was DAVID L. MCCOMBS. Of counsel on the brief were MARTA BECKWITH, Cisco Systems, Inc., of San Jose, California; ELIZABETH LAUNER, Logitech Inc., of Newark, California; and RICHARD J. LUTTON, JR., Nest Labs, Inc., of Palo Alto, California.

RICHARD M. BRUNELL, Senior Advisor for competition matters, United States Federal Trade Commission, of Washington, DC, for amicus curiae United States Federal Trade Commission. With him on the brief were DAVID C. SHONKA, Acting General Counsel, WILLIAM COHEN, Deputy General Counsel, WILLIAM F. ADKINSON, JR., Attorney and SUZANNE MUNCK of ROSENCHOLD, Chief Counsel for Intellectual Property.

PETER M. LANCASTER, Dorsey & Whitney LLP, of Minneapolis, Minnesota, for amicus curiae The Institute

of Electrical and Electronics Engineers, Incorporated. With him on the brief were MICHAEL A. LINDSAY, of Minneapolis, Minnesota, and EILEEN M. LACH, General Counsel and Chief Compliance Officer IEEE, of New York, New York.

PAUL D. CLEMENT, Brancroft PLLC, of Washington, DC, for amici curiae Verizon Communications Inc., et al. With him on the brief was D. ZACHARY HUDSON.

TINA M. CHAPPELL, Director of Intellectual Property Policy, Intel Corporation, of Chandler, Arizona, for amicus curiae Intel Corporation. With her on the brief were THOMAS G. HUNGER and MATTHEW D. MCGILL, Gibson, Dunn & Crutcher LLP, of Washington, DC.

RICHARD S. TAFFET, Bingham McCutchen LLP, of New York, New York, for amicus curiae Qualcomm Incorporated. With him on the brief were PATRICK STRAWBRIDGE, of Boston, Massachusetts and DAVID B. SALMONS, of Washington, DC.

BRIAN R. MATSUI, Morrison & Foerster LLP, of Washington, DC, for amicus curiae Law Professors Thomas F. Cotter, et al. With him on the brief was NATALIE R. RAM.

ROY T. ENGLERT, JR., Robbins, Russell, Englert, Orseck, Untereiner & Sauber LLP, of Washington, DC, for amicus curiae, BSA | The Software Alliance.

PATRICK J. FLINN, Alston and Bird LLP, of Atlanta, Georgia, for amici curiae Nokia Corporation, et al. With him on the brief was KEITH E. BROYLES.

BRIAN C. RIOPELLE, McGuire Woods LLP, of Richmond, Virginia, for amicus curiae Research in Motion Limited. With him on the brief were ROBERT M. TYLER and KRISTEN M. CALLEJA.

CONSTANTINE L. TRELA, JR., Sidley Austin LLP, of Chicago, Illinois, for amicus curiae Microsoft Corporation. With him on the brief were RICHARD A. CEDEROTH and NATHANIEL C. LOVE. Of counsel on the brief were T. ANDREW CULBERT and DAVID E. KILLOUGH, Microsoft Corporation, of Redmond, West Virginia.

Before RADER, *Chief Judge*, PROST and REYNA, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* REYNA.

Opinion dissenting in part filed by *Chief Judge* RADER.

Opinion concurring in part and dissenting in part filed by *Circuit Judge* PROST.

REYNA, *Circuit Judge*

Plaintiffs Apple Inc. and Next Software, Inc. (“Apple”) filed a complaint against Defendants Motorola, Inc. and Motorola Mobility, Inc. (“Motorola”) on October 29, 2010 in the United States District Court for the Western District of Wisconsin, asserting infringement of three patents. Motorola counterclaimed, asserting six of its own patents. Apple amended its complaint to include an additional twelve patents. Both parties also sought declaratory judgments of non-infringement and invalidity.

After claim construction began in Wisconsin, the case was transferred to the United States District Court for the Northern District of Illinois, Judge Posner sitting by designation. The district court in Illinois completed claim construction. Based upon its claim construction decisions, the court granted summary judgment of non-infringement with respect to certain claims and excluded the vast majority of both parties’ damages expert evidence for the remaining claims. With little expert evidence deemed

admissible, the court granted summary judgment that neither side was entitled to any damages or an injunction. Despite infringement being assumed, the district court dismissed all claims with prejudice before trial.

Only six patents are at issue on appeal: Apple's U.S. Patent Nos. 7,479,949; 6,343,263; and 5,946,647; and Motorola's U.S. Patent Nos. 6,359,898; 6,175,559; and 5,319,712. The parties contest the district court's claim construction, admissibility, damages, and injunction decisions. As detailed below, we affirm the district court's claim construction decisions, with the exception of its construction of Apple's '949 patent. With a minor exception, the district court's decision to exclude the damages evidence presented by both Apple and Motorola is reversed. We also reverse the district court's grant of summary judgment of no damages for infringement of Apple's patents. Based upon our reversal of the district court's claim construction of the '949 patent, we vacate the court's grant of summary judgment regarding Apple's request for an injunction. The court's decision that Motorola is not entitled to an injunction for infringement of the FRAND-committed '898 patent is affirmed. We address these, and all related issues, in turn.

CLAIM CONSTRUCTION

The parties raise claim construction issues regarding Apple's '949, '263, and '647 patents and Motorola's '559 and '712 patents. Claim construction is a question of law that we review *de novo*. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454-55 (Fed. Cir. 1998) (en banc).

Apple's '949 patent

The district court construed claims 1, 2, 9, and 10 of the '949 patent and, based upon its construction, granted Motorola's motion for summary judgment of non-infringement for the majority of the accused products. Because the district court mistakenly construed certain

limitations as means-plus-function limitations, we reverse its claim construction and vacate the subsequent summary judgment decision.

The '949 patent discloses the use of finger contacts to control a touchscreen computer. Claims 1, 2, 9, and 10 of the '949 patent are recited below, with the limitations at issue emphasized. Claim 1 recites:

A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs,

wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:

instructions for detecting one or more finger contacts with the touch screen display;

instructions for applying one or more *heuristics* to the one or more finger contacts to determine a command for the device; and

instructions for processing the command;

wherein the one or more *heuristics* comprise:

a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command *based on an angle of initial movement of a finger contact with respect to the touch screen display*;

a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command *based on the*

angle of initial movement of the finger contact with respect to the touch screen display; and

a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

'949 patent at col. 122 l. 37 - col. 123 l. 2 (emphases added). Claim 2 recites:

The computing device of claim 1, wherein the one or more heuristics include *a heuristic* for determining that the one or more finger contacts correspond to a command to translate content within a frame rather than translating an entire page that includes the frame.

Id. at col. 123, lns 3-7 (emphasis added). Claim 10 recites:

The computing device of claim 9, wherein the first set of heuristics comprises *a heuristic* for determining that the one or more first finger contacts correspond to a one-dimensional horizontal screen scrolling command rather than the two-dimensional screen translation command based on the angle of initial movement of the finger contact with respect to the touch screen display.

Id. at col. 124, ll. 1-7. The district court first found that the claim term “heuristic” was not indefinite, instead construing it as “one or more rules to be applied to data to assist in drawing inferences from that data.” Next, the court found that the “heuristic” limitations in claims 1, 2, 9, and 10 described functions “without describing the structure necessary to perform the functions.” Accordingly, the court concluded that these claim limitations were means-plus-function limitations under 35 U.S.C. § 112, ¶6, despite not reciting the word “means.” The court next

found that the specification contained sufficient “corresponding structure” capable of performing the claimed functions. 35 U.S.C. § 112. In doing so, the court limited the “next item heuristic” in claim 1 to “a heuristic that uses as one input a user’s *finger tap on the right side of the device’s touch screen.*” Based upon this construction, Motorola moved for summary judgment of non-infringement. The court concluded that the only accused products that use a “finger tap” in this manner are those that come pre-loaded with a specific program: the Amazon Kindle application. The court granted Motorola’s motion for summary judgment of non-infringement for the remaining accused products.

On appeal, Motorola again argues that “heuristic” is indefinite. In the alternative, Motorola argues that the district court correctly concluded that the heuristic limitations were drafted in means-plus-function format and correctly limited the “next item heuristic” limitation to the finger tap gesture. Apple points out that the claims do not use the word “means” and that this creates a strong presumption against construing the limitations as means-plus-function limitations. Apple argues that the heuristic limitations connote sufficiently definite structure such that Motorola has not overcome this strong presumption.

Whether claim language invokes Section 112, ¶6 is a question of law that we review *de novo*. *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1356 (Fed. Cir. 2011); *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004). Section 112, ¶6 states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the correspond-

ing structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶6. The overall means-plus-function analysis is a two-step process. Naturally, there is some analytical overlap between these two steps. In the first step, we must determine if the claim limitation is drafted in means-plus-function format. As part of this step, we must construe the claim limitation to decide if it connotes “sufficiently definite structure” to a person of ordinary skill in the art, which requires us to consider the specification (among other evidence). In the second step, if the limitation is in means-plus-function format, we must specifically review the specification for “corresponding structure.” Thus, while these two “structure” inquiries are inherently related, they are distinct.

The Dissent is concerned that we have impermissibly looked for corresponding structure in the specification before deciding that the claim is in means-plus-function format thereby creating a new rule that renders “*every* means-plus-function claim term indefinite.” J. Prost Dissent at 3-4 (emphasis in original) (“Dissent”). This is not our analysis. The Dissent correctly notes that the first step in the means-plus-function analysis requires us to determine whether the entire claim limitation at issue connotes “sufficiently definite structure” to a person of ordinary skill in the art. Dissent at 2-3. In so doing, we naturally look to the specification, prosecution history, and relevant external evidence to construe the limitation. While this inquiry may be similar to looking for corresponding structure in the specification, our precedent requires it when deciding whether a claim limitation lacking means connotes sufficiently definite structure to a person of ordinary skill in the art. *See, e.g., Inventio*, 649 F.3d at 1357 (“It is proper to consult the intrinsic record, including the written description, when determining if a challenger has rebutted the presumption that a claim lacking the term ‘means’ recites sufficiently definite

structure.”); *Lighting World*, 382 F.3d at 1360-64 (examining the written description and external evidence); *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, 1374 (Fed. Cir. 2012) (examining remaining claim language, written description, and external evidence); *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004) (examining remaining claim language and external evidence). Because these inquiries are distinct, it is possible to find that a claim limitation does not connote sufficiently definite structure despite the presence of some corresponding structure in the specification. See, e.g., *Massachusetts Inst. of Tech. v. Abacus Software*, 462 F.3d 1344, 1355 (Fed. Cir. 2006) (“MIT”); *Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1096-97 (Fed. Cir. 2008). As such, not “every” mean-plus-function limitation is indefinite under our precedent; only those that lack the term means, do not connote sufficiently definite structure, and lack corresponding structure. We do not state or apply a different rule in this case. In this case, as we find that the claims connote sufficiently definite structure to a person of ordinary skill in the art, we do not reach the second step of the means-plus-function analysis.

As the district court recognized, when a claim limitation lacks the term “means,” it creates a rebuttable presumption that Section 112, ¶6 does not apply. See, e.g., *Lighting World*, 382 F.3d at 1358; *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002). This presumption may be overcome if the claim fails to recite “sufficiently definite structure” or merely recites a “function without reciting sufficient structure for performing that function.” *Linear*, 379 F.3d at 1319 (quoting *Watts v. XL Sys. Inc.*, 232 F.3d 887, 880 (Fed. Cir. 2000)); see also *Inventio*, 649 F.3d at 1356. We have repeatedly characterized this presumption as “strong” and “not readily overcome” and, as such, have “seldom” held that a limitation without recitation of “means” is a means-plus-

function limitation. *Lighting World*, 382 F.3d at 1358, 1362; *Inventio*, 649 F.3d at 1356; *see also Flo Healthcare*, 697 F.3d at 1374 (“When the claim drafter has not signaled his intent to invoke § 112, ¶ 6 by using the term ‘means,’ we are unwilling to apply that provision without a showing that the limitation essentially is devoid of anything that can be construed as structure.”).

The Dissent suggests that choosing to include “means” in a claim limitation is a “minor drafting decision” that correspondingly merits little weight in a Section 112, ¶6 analysis. Dissent at 7. We disagree. The strong presumption created by not including means in a claim limitation provides clarity and predictability for the public and the patentee alike. It helps the public determine when claim elements are expressly limited to structures disclosed in the specification (or their equivalents) and provides the patentee with the tools for reliably invoking or avoiding means-plus-function claiming. It also signals to the court that the patentee has chosen to avail, or avoid, the benefits of Section 112, ¶6. We recognize that the choice to draft a claim in “broad structural terms” rather than in a means-plus-function format may render the claim more vulnerable to an invalidity attack. *Id.* Whether to draft a claim in broad structural terms is the claim drafter’s choice, and any resulting risk that emanates from that choice is not a basis for the court to rewrite a claim in means-plus-function format. *See id.* By focusing on the claim terms the patentee chose, this presumption also reaffirms the primacy of the claim language during claim construction, as outlined in *Phillips v. AWH Corp.* 415 F.3d 1303 (Fed. Cir. 2005). Here, as in all aspects of claim construction, “the name of the game is the claim.” *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (quoting Giles Sutherland Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 Int’l Rev. Indus. Prop. & Copyright L. 497, 499 (1990)).

In this case, Motorola bears the burden of overcoming the presumption that Section 112, ¶6 does not apply by a preponderance of the evidence. See *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1372 (Fed. Cir. 2003). The district court made several erroneous findings that led it to incorrectly conclude that Motorola rebutted this strong presumption. The district court misapplied our precedent by requiring the claim limitations of the '949 patent themselves to disclose “a step-by-step algorithm as required by *Aristocrat Technologies*.” *Aristocrat* and related cases hold that, if a patentee has invoked computer-implemented means-plus-function claiming, the corresponding structure in the specification for the computer implemented function must be an algorithm unless a general purpose computer is sufficient for performing the function. *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008) (requiring disclosure of an algorithm when it is not disputed that claims were drafted in means-plus-function format); *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999) (same); *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 518 (Fed. Cir. 2012); *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385 (Fed. Cir. 2011). But see *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (finding that disclosure of a general purpose computer is sufficient corresponding structure for means-plus-function claims).

In all these cases, the claims recited the term “means,” thereby expressly invoking means-plus-function claiming. In addition, the parties in these cases did not dispute on appeal that these claims were drafted in means-plus-function format. Hence, where a claim is not drafted in means-plus-function format, the reasoning in the *Aristocrat* line of cases does not automatically apply, and an algorithm is therefore not necessarily required. The correct inquiry, when “means” is absent from a limi-

tation, is whether the limitation, read in light of the remaining claim language, specification, prosecution history, and relevant extrinsic evidence, has sufficiently definite structure to a person of ordinary skill in the art. Here, the answer is yes.

“Structure” to a person of ordinary skill in the art of computer-implemented inventions may differ from more traditional, mechanical structure. For example, looking for traditional “physical structure” in a computer software claim is fruitless because software does not contain physical structures. Indeed, the typical physical structure that implements software, a computer, cannot be relied upon to provide sufficiently definite structure for a software claim lacking “means.” Rather, to one of skill in the art, the “structure” of computer software is understood through, for example, an outline of an algorithm, a flowchart, or a specific set of instructions or rules. *See, e.g., Typhoon Touch*, 659 F.3d at 1385 (“[T]he patent need only disclose sufficient structure for a person of skill in the field to provide an operative software program for the specified function.”); *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008).¹ Requiring traditional physical structure in software limitations lacking the term means would result in all of these limitations being construed as means-plus-function limitations and subsequently being found indefinite.

¹ We cite these cases as examples of “structure” to a person ordinarily skilled in the art of computer software. We do not cite these cases for the principle that we must review the specification, prosecution history, and relevant external evidence when deciding if a claim limitation connotes structure. *See* Dissent at fn. 2. As discussed herein, there is ample support for that proposition elsewhere. *See, e.g., Inventio*, 649 F.3d at 1356-57.

A limitation has sufficient structure when it recites a claim term with a structural definition that is either provided in the specification or generally known in the art. *See, e.g., Flo Healthcare*, 697 F.3d at 1374 (“We will not apply § 112, ¶ 6 if the limitation contains a term that ‘is used in common parlance or by persons of skill in the pertinent art to designate structure.’”) (*quoting Lighting World*, 382 F.3d at 1359); *Personalized Media*, 161 F.3d at 704-05. In *Personalized Media*, we found that the claim term “detector,” by itself, connoted sufficient structure to a person of ordinary skill in the art. 161 F.3d at 704-05 (agreeing with ALJ that “‘detector’ had a well-known meaning to those of skill in the electrical arts connotative of structure”). There, we contrasted the structural term “detector” with generic, non-structural, terms such as “means,” “element,” and “device.” *Id.* at 705; *see also Apex*, 325 F.3d at 1373 (finding that the term “circuit,” coupled with identifiers such as “interface,” “programming,” and “logic,” connoted sufficient structure to a person of ordinary skill in the art).

Structure may also be provided by describing the claim limitation’s operation, such as its input, output, or connections. The limitation’s operation is more than just its function; it is how the function is achieved in the context of the invention. For example, in *Linear*, we found that the claim term “circuit” has a known structural definition and that the patent described the circuit’s operation, including its input, output, and objective. 379 F.3d at 1320-21. Similarly, in *Lighting World*, we found that “connector” had a known structural definition and that the specification described its operational requirements, including which claim elements it was connected to and how they were connected. 382 F.3d at 1361-63. In both cases, we found the presumption against means-plus-function claiming was un rebutted.

Even if a patentee elects to use a “generic” claim term, such as “a nonce word or a verbal construct,” properly

construing that term (in view of the specification, prosecution history, etc.) may still provide sufficient structure such that the presumption against means-plus-function claiming remains intact. *Id.* at 1360; *see also Inventio*, 649 F.3d at 1356-57 (“Claims are interpreted in light of the written description supporting them, and that is true whether or not the claim construction involves interpreting a ‘means’ clause.”); *MIT*, 462 F.3d at 1354 (“The generic terms ‘mechanism,’ ‘means,’ ‘element,’ and ‘device,’ typically do not connote sufficiently definite structure.”). For example, in *Inventio*, the claim included the generic term “device.” 649 F.3d at 1354 (reciting “at least one *modernizing device* and connecting the at least one *modernizing device* to said floor terminals and said at least one computing unit.”) (emphasis added). However, the specification described the modernizing device’s input, output, internal components, and how the internal components were interconnected. *Id.* at 1358-59. As such, the presumption against means-plus-function treatment was not overcome. *See also Flo Healthcare*, 697 F.3d at 1374-75 (noting that “mechanism” is a generic term, but then looking to remaining claim language and written description before finding that the full claim limitation connoted structure). These cases teach that, if a limitation recites a term with a known structural meaning, or recites either a known or generic term with a sufficient description of its operation, the presumption against means-plus-function claiming remains intact.

The limitation need not connote a single, specific structure; rather, it may describe a class of structures. *See, e.g., Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 705 (Fed. Cir. 1998) (“Even though the term ‘detector’ does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety of structures known as ‘detectors.’”); *Flo Healthcare*, 697 F.3d at 1374-75 (finding that claim term “height adjustment mechanism” designates “a class

of structures that are generally understood to persons of skill in the art”). Indeed, even if the patent describes all structures that perform the recited function, this, by itself, does not overcome the strong presumption that means-plus-function claiming does not apply when the term “means” is not recited in the claim. *Lighting World*, 382 F.3d at 1361-62.

By contrast, if the claim merely recites a generic nonce word and the remaining claim language, specification, prosecution history, and relevant external evidence provide no further structural description to a person of ordinary skill in the art, then the presumption against means-plus-function claiming is rebutted. In *MIT*, for example, the claims recited a “colorant selection mechanism.” 462 F.3d at 1353. As noted, “mechanism” by itself does not connote sufficient structure, and the term “colorant selection” was not defined in the specification or otherwise known to a person of ordinary skill in the art. *Id.* at 1353-55. Further, the patentee used the terms “mechanism” and “means” interchangeably in the specification. *Id.* at 1354; *see also Mas-Hamilton Grp. v. LaGard Inc.*, 156 F.3d 1206, 1214-16 (Fed. Cir. 1998) (claim recited “element” and “member” and patent provided no further structural description of these generic terms); *Welker Bearing*, 550 F.3d at 1096-97 (claim recited a “mechanism” without further structure described in specification). Thus, if a claim recites a generic term that, properly construed in light of the specification, lacks sufficiently definite structure to a person of ordinary skill in the art, the presumption is overcome and the patentee has invoked means-plus-function claiming.

With this precedent in mind, we turn to the claim limitations at issue in the ’949 patent. We find that “heuristic” has a known meaning and the ’949 patent also describes the limitation’s operation, including its input, output, and how its output may be achieved. Accordingly, the heuristic claim limitations recited above have “suffi-

ciently definite structure,” to a person of ordinary skill in the art, for performing the recited functions.

Broadly speaking, the function of the recited limitations is to identify a command based upon particular finger contacts. To achieve this function, the patent describes “heuristics.” Depending upon the circumstances, heuristic is not necessarily a generic, structureless “nonce word or a verbal construct” without any meaning, such as “mechanism,” “means,” “element,” or “widget.” The district court correctly determined that a person of ordinary skill in the art would understand “heuristic” to mean “one or more rules to be applied to data to assist in drawing inferences from that data.” In this sense, “heuristic” is similar to words that define a class of structures, such as “connector,” “circuit,” and “detector,” and it does not include all means for performing the recited function. *See, e.g., Flo Healthcare*, 697 F.3d at 1374 (“We will not apply § 112, ¶ 6 if the limitation contains a term that ‘is used in common parlance or by persons of skill in the pertinent art to designate structure’”) (quoting *Lighting World*, 382 F.3d at 1359); *Personalized Media*, 161 F.3d at 704-05. The fact that heuristic is defined partly in terms of its function does not detract “from the definiteness of [the] structure” it may connote. *Personalized Media*, 161 F.3d at 703-05. Indeed, “many devices take their names from the functions they perform.” *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996); *see also MIT*, 462 F.3d at 1354; *Lighting World*, 382 F.3d at 1359-60.

We need not decide here whether the term “heuristic,” by itself, connotes sufficient structure to maintain the presumption against means-plus-function claiming because, in this case, the claims do not nakedly recite heuristics without further description in the remaining claim language and specification. To the contrary, the claim language and specification disclose the heuristics’ opera-

tion within the context of the invention, including the inputs, outputs, and how certain outputs are achieved.

In all cases, the claimed input is a finger contact. The specification explains that the finger contacts may be taps, swipes, double taps, or finger rolling, and may involve one or two fingers contacting the screen at different initial angles. *See, e.g.*, '949 Patent at col. 19, ll. 30-46; col. 65, ll. 21-24; col. 66, ll. 47-51. The claims recite heuristics with varying objectives, including vertical screen scrolling, two-dimensional screen translation, moving to the next item in a list, and translating content within a frame. The claims also explain that the invention differentiates between vertical scrolling and two-dimensional translation based upon the angle of initial movement of the finger contact.

The written description provides further details regarding the heuristics' inputs and outputs. Regarding one-dimensional vertical screen scrolling, the specification explains that "in response to an upward swipe gesture 3937 by the user that is within a predetermined angle (e.g., 27°) of being perfectly vertical, the web page may scroll one-dimensionally upward in the vertical direction." '949 Patent at col. 64, ll. 21-25. Regarding two-dimensional translation, the specification discloses that "in response to an upward swipe gesture 3939 (FIG. 39C) by the user that is not within a predetermined angle (e.g., 27°) of being perfectly vertical, the web page may scroll two-dimensionally along the direction of the swipe." *Id.* at col. 64, ll. 30-34. The specification defines two-dimensional movement as "simultaneous movement in both the vertical and horizontal directions." *Id.* The specification explains how a user can move to the next item in a list via a finger tap gesture on the right side of the screen, a right-to-left finger swipe, or by tapping a next image icon. *Id.* at col. 30, ll. 42-67.

The specification also discusses the structure behind translating “content within a frame rather than translating the entire page that includes the frame.” *Id.* at col. 123, ll. 6-8. For performing this function, the specification describes an “M-finger translation gesture 4214,” where M is a number different from the number of fingers used to translate the entire page. *Id.* at col. 75, ll. 18-26. The specification also explains that the direction of translation may be the direction of the “movement of the M-finger translation gesture.” *Id.* at col. 75, ll. 34-35. Alternatively, the direction of translation may be determined by the angle of the movement of the M-finger gesture, according to a particular rule, i.e. a specific, identifying heuristic. *Id.* at col. 75, ll. 39-44.

The figures in the '949 patent provide further structural details. Figs. 12A, 39C, 42A, 42B, and 42C illustrate the finger contacts described in the specification that result in vertical scrolling (3937), two-dimensional translation (3939), turning to the next item (1218, 1220, and 1212), or translating within a frame (4214).

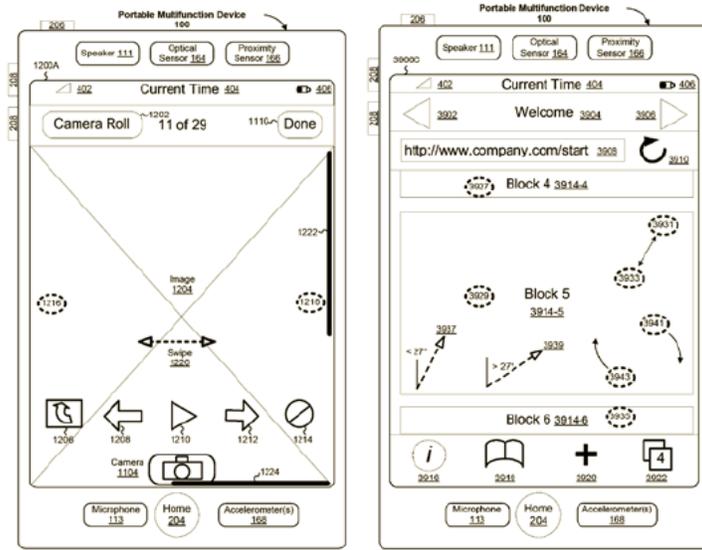


Figure 12A

Figure 39C

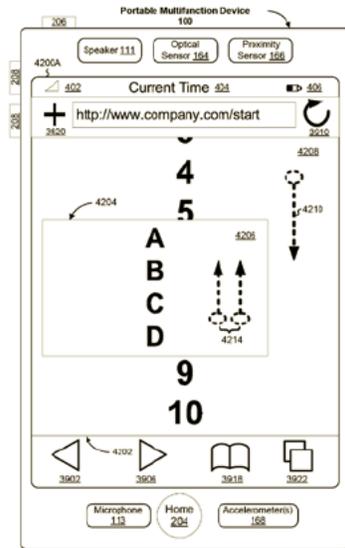


Figure 42A

In sum, the claims at issue differ from those that simply recite a generic means or mechanism, without further description in the remaining claim language or the specification. Instead, the claim language and specification outline the rules that the heuristics follow, based upon, for example, the initial angle of a finger contact, the

number of fingers making contact, the direction of movement of a finger contact, a specific swiping gesture, tapping a certain location on the screen, or the angle of movement of a finger on the screen. *See Welker Bearing*, 550 F.3d at 1096-97; *Inventio*, 649 F.3d at 1359 (“This is not a case where a claim nakedly recites a ‘device’ and the written description fails to place clear structural limitations on the ‘device.’”). Thus, the ’949 patent recites a claim term with a known meaning and also describes its operation, including its input, output, and how its output may be achieved.

Accordingly, the heuristic claim limitations provide “sufficiently definite structure,” to a person of ordinary skill in the art, for performing the recited function, and Motorola has not rebutted the strong presumption against means-plus-function claiming. We reverse the district court’s construction that the “heuristic” claim limitations were drafted in means-plus-function format and vacate its summary judgment of non-infringement.

Apple’s ’647 Patent

Regarding Apple’s ’647 patent, the parties dispute the meaning of the claim terms “analyzer server” and “linking actions to the detected structures.” The district court construed “analyzer server” as “a server routine separate from a client that receives data having structures from the client” and “linking actions to the detected structures” as “creating a specified connection between each detected structure and at least one computer subroutine that causes the CPU to perform a sequence of operations on that detected structure.” Apple argues that both constructions are erroneous. We disagree with Apple and affirm the district court’s claim construction.

The ’647 patent discloses a system for recognizing certain structures (such as a telephone number) on a touchscreen and then linking certain actions (such as calling the telephone number) to the structure. For

example, a user may be able to call or save a phone number it has received via text message or email simply by touching the number on the screen of its device. Claim 1 of the '647 patent, with relevant claim limitations emphasized, recites:

A computer-based system for detecting structures in data and performing actions on detected structures, comprising:

an input device for receiving data;

an output device for presenting the data;

a memory storing information including program routines including *an analyzer server* for detecting structures in the data, and for *linking actions to the detected structures*;

a user interface enabling the selection of a detected structure and a linked action;

and an action processor for performing the selected action linked to the selected structure; and a processing unit coupled to the input device, the output device, and the memory for controlling the execution of the program routines.

'647 patent at col. 7, ll. 9-24 (emphasis added). The district court agreed with Motorola that “analyzer server” should be construed as “a server routine separate from a client that receives data having structures from the client.” Apple argues that the analyzer server need not be “separate from a client.” Instead, Apple argues that “analyzer server” should be construed as “a program routine(s) that receives data, uses patterns to detect structures in the data, and links actions to the detected structures.”

We agree with the district court’s construction of “analyzer server.” As the district court recognized, the plain meaning of “server,” when viewed from the perspective of

a person of ordinary skill in the art, entails a client-server relationship. Consistent with this perspective, the specification discloses an analyzer server that is separate from the application it serves. The analyzer server is part of the “program 165 of the present invention.” ’647 patent at col. 3, ll. 38-39. Fig. 1 shows the program 165 and the application 167 as separate parts of a random-access memory (RAM):

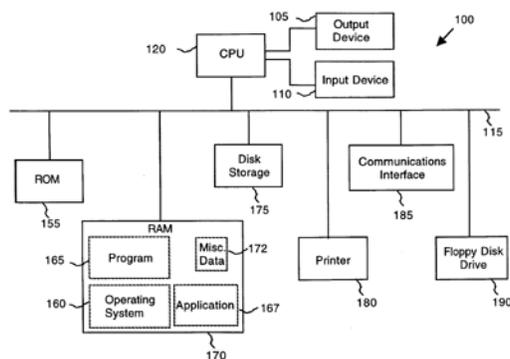


FIG. 1

Id. at Fig. 1. Further, the specification states that “the program 165 of the present invention is stored in RAM 170 and causes CPU 120 to identify structures in data presented by the application 167.” *Id.* at col. 3, ll. 37-41. Thus, the specification describes the analyzer server and the application, which it serves, as separate structures.

Apple does not point to evidence suggesting a different ordinary meaning, nor do we discern such evidence in the record before this court. Indeed, Apple’s proposed construction contradicts the claim language because it reads “analyzer server” out of the claim. The claim recites “*routines including an analyzer server for detecting structures in the data, and for linking actions to the detected structures.*” Apple’s proposed construction recites program routines that *detect structures and links actions to the detected structures*, without any mention of “analyzer servers.” Apple’s construction essentially takes the claim text and removes the “analyzer server,” leaving the rest

basically unchanged. Thus, Apple's construction conflicts with the claim language by ignoring the claim term "server." See, e.g., *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."); *Pause Tech., LLC v. TiVo, Inc.*, 419 F.3d 1326, 1334 (Fed. Cir. 2005) ("In construing claims, however, we must give each claim term the respect that it is due."); *Strattec Sec. Corp. v. Gen. Auto. Specialty Co.*, 126 F.3d 1411, 1417 (Fed. Cir. 1997) (holding that it was legal error for the district court to instruct the jury that the claim term "sheet" was not properly considered part of the claim); *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995) ("We must give meaning to all the words in Exxon's claims."). By contrast, the district court's construction comports with the ordinary meaning of "server" and is supported by the specification. Accordingly, we affirm the district court's construction of "analyzer server."

The district court also agreed with Motorola that "linking actions to the detected structures" should be construed as "creating a *specified connection* between each detected structure and *at least one* computer subroutine that causes the CPU to perform a sequence of operations on that detected structure." Apple argues that the district court's construction is erroneous for two reasons. First, the district court incorrectly added the "specified connection" limitation. Second, the claims require linking multiple actions to each structure, rather than "at least one." Apple contends that the correct construction is "*associating* detected structures to computer subroutines that cause the CPU to perform a sequence of operations on the particular structure to which they are associated."

We agree with the district court. Apple argues that the claims require only "associating" between the structure and the subroutines but ignores that the claims

recite “linking.” From a general sense, the plain meaning of associating relates to a mere commonality, while linking infers a joining. Additionally, the specification here demonstrates that linking is more than just associating. The patent consistently differentiates between associating and linking and implies that linking is a more specific connection than merely associating. For example, the specification explains that actions are “associated” with specific “grammars” or “patterns,” and that “linking” occurs only after these grammars or patterns are “detected.” See, e.g., ’647 patent at col. 5, ll. 59-61 (“upon detection of a structure based on a particular pattern, *actions associated with the particular pattern are linked* 825 to the detected structure”); col. 7, ll. 38-39 (“wherein the analyzer server *links* to a detected structure *the actions associated with the grammar*”); col. 3, ll. 65-67 (“analyzer server 220 *links actions associated* with the responsible pattern to the detected structure, using conventional pointers”); col. 5, ll. 31-33 (“analyzer server 220 *links the actions associated with grammars* 410 and strings 420 to these identified structures”) (emphases added).

Apple argues that requiring a “specified connection” limits the claims to the use of the “pointers” described in the specification. The district court explained that a pointer is “a term of art in computer engineering” that “stores a computer memory address.” The specification explains that pointers may be used to link the associated actions to the detected structures. ’647 patent at col. 3, ll. 65-67 (“upon detection of a structure, analyzer server links actions associated with the responsible pattern to the detected structure, using conventional pointers”); col. 4, l. 64 – col. 5, l. 5 (“[U]pon identification of a structure in the text, parser links the actions associated with the grammar to the identified structure. More particularly, parser retrieves from grammar file pointers attached to the grammar and attaches the same pointers to the identified structure. These pointers direct the system to

the associated actions contained in associated actions file. Thus, upon selection of the identified structure, user interface can locate the linked actions.”).

Although the district court stated that the specification “makes clear that linking is accomplished through pointers,” it did not, as Apple argues, actually limit the claims to “pointers.” Rather, the court interpreted linking to require a “specified connection,” not just a connection established with the use of pointers. The specification explains that linking may be accomplished through the use of pointers but does not require their use and neither did the district court. Thus, the district court’s construction comports with the specification, including the repeated differentiation between linking and associating and the pointers embodiment described therein.

Apple is also incorrect that the claims require each structure to be linked with multiple actions. Apple points to the claim’s recitation of the plural “actions.” See ’647 patent at col. 7, ll. 17-18 (“an analyzer server for detecting structures in the data, and for linking *actions* to the detected *structures*”) (emphasis added). The plain language of the claims does not require multiple actions for each structure because the claim recites linking multiple actions to multiple structures. As such, the plural “actions” may be reasonably read as at least one action per structure. In fact, Fig. 4 displays an example of the invention with only one action linked to a specific structure.

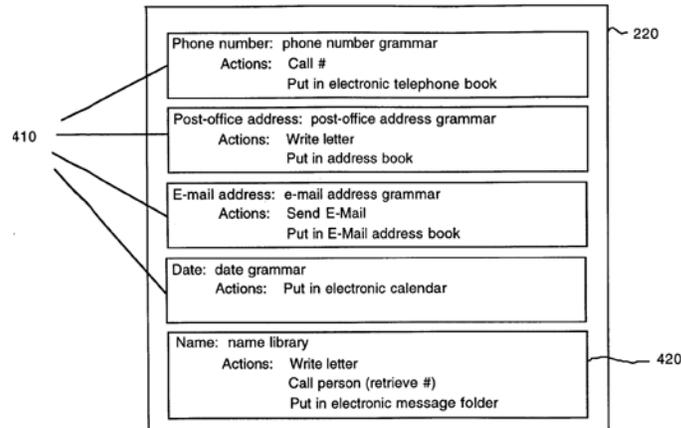


FIG. 4

'647 patent at Fig. 4. In Fig. 4, the “date grammar” structure only has one corresponding action, “put in electronic calendar.” This directly contradicts Apple’s proposal to require the claims to link multiple actions to each structure. '647 patent at Fig. 4. Accordingly, we affirm the district court’s construction of “linking actions to the detected structures.”

Apple’s ’263 Patent

The ’263 patent discloses a system for processing data in “realtime.” The parties dispute whether the “realtime application program interface (API)” in claim 1 must itself function in realtime or whether it must just facilitate realtime processing by other subsystems. The district court concluded that the API need just facilitate realtime processing and construed “realtime API” as an “API that allows realtime interaction between two or more subsystems.” Motorola argues that this construction reads “realtime” out of the claim. We disagree and affirm the district court’s construction.

Claim 1, with the relevant limitation emphasized, recites:

A signal processing system for providing a plurality of realtime services to and from a number of independent client applications and devices, said system comprising:

a subsystem comprising a host central processing unit (CPU) operating in accordance with at least one application program and a device handler program, said subsystem further comprising an adapter subsystem interoperating with said host CPU and said device;

a realtime signal processing subsystem for performing a plurality of data transforms comprising a plurality of realtime signal processing operations; and

at least one *realtime application program interface (API)* coupled between the subsystem and the realtime signal processing subsystem to allow the subsystem to interoperate with said realtime services.

'263 patent at col. 11, ll. 28-43 (emphasis added). The district court noted that, generally, to be realtime, a system “must satisfy explicitly (bounded) response-time constraints or risk severe consequences,” such as degraded performance.

Motorola contends that the district court’s construction reads “realtime” out of the claim because it does not *require* the API itself to function in realtime. Motorola points to independent claim 31, which recites an API without the “realtime” qualifier, and argues that, by including realtime in claim 1, the patentee intended that the API itself operate in realtime. *See Phillips*, 415 F.3d at 1314 (finding that use of the word “steel” in the term “steel baffles” “strongly implies” a difference between steel baffles and non-steel baffles).

We agree with the district court. The specification describes the API as an interface that sends commands and parameters to the “real-time engine,” which actually performs the realtime data processing. The specification does not describe the API itself as meeting any specific response-time constraints or otherwise needing realtime functionality. Instead, the API’s role is to send commands and parameters to the real-time engine. *See, e.g.*, ’263 patent at col. 6, ll. 33-38 (“each interface receives commands from an application program, through the handler 44, and instructs the real-time engine to carry out the necessary transforms”); col. 5, ll. 22-25 (“the particular transforms to be performed are sent as commands to the real-time engine from the adapter handler 44 via suitable application programming interfaces 48”); col. 10, ll. 40-44 (“in response thereto, the API 48 which receives these commands supplies the real-time engine with the appropriate parameters for performing the transforms in the required format”). By contrast, the real-time engine is described as performing the actual processing, such as “text-to-speech conversion” or “video processing.” ’263 patent at abst. (“a data transmission system having a real-time engine for processing isochronous streams of data”); col. 10, ll. 16-18 (“the actual modulation and demodulation of the hardware interface adapter’s isochronous PCM data stream is accomplished entirely by the real-time engine”); col. 9, ll. 65-67 (“the handler has no involvement with the isochronous data stream created by the real-time engine”). Thus, although the API interacts with the real-time engine, it is the latter that actually performs the time-constrained processing.

Contrary to Motorola’s argument, the district court did not read “realtime” out of the claim. The API is an “interface.” As such, it communicates and interacts with other subsystems that process data in realtime without necessarily processing any data itself. This is what the specification describes and what the district court correct-

ly understood. Further, the district court’s construction does not *prevent* the API from functioning in realtime, it just does not *require* the API to function in realtime. This is consistent with the claims and written description, which only require the API to facilitate the functionality of the real-time engine. We affirm the district court’s claim construction.

Motorola’s ’559 Patent

Turning to Motorola’s asserted patents, the ’559 patent discloses a method for generating “preamble sequences,” which are used in communications between cell phones and base stations. The district court construed claim 5 of the ’559 patent to require that the third step (“multiplying the outer code by the inner code”) take place only after the first two steps (“forming an outer code” and “forming an inner code”) are completed. Based upon this construction, the court granted summary judgment of non-infringement to Apple. Motorola appeals only the claim construction decision. We affirm.

Claim 5, with relevant limitations emphasized, recites:

A method for generating preamble sequences in a CDMA system, the method comprising the steps of:

forming an *outer code* in a mobile station;

forming an *inner code* in the mobile station utilizing the following equation:

$$c_i(k) = \sum_{j=0}^{M-1} s_j(k - jP)$$

where s_j , $j=0,1, \dots, M-1$ are a set of orthogonal codewords of length P , where M and P are positive integers; and

multiplying the outer code by the inner code to generate a preamble sequence.

'559 patent at col. 5, ll. 20-35 (emphasis added).

Steps in a method claim need not necessarily be performed in the order they are written. *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003). On the other hand, if grammar, logic, the specification, or the prosecution history require the steps to be performed sequentially, then the claims are so limited. *Id.*; *Loral Fairchild Corp. v. Sony Corp.*, 181 F.3d 1313, 1322 (Fed. Cir. 1999) (“Although not every process claim is limited to the performance of its steps in the order written, the language of the claim, the specification and the prosecution history support a limiting construction in this case.”). The district court correctly noted that, while in a preferred embodiment the inner and outer codes are formed before the multiplication step begins, this alone does not limit the claims. *See, e.g.*, '559 patent at Fig. 4. The district court also acknowledged that the invention would likely function even if the multiplication step began before the full inner and outer codes were formed. Notwithstanding the foregoing, the court construed the claims to require that step three occur only after steps one and two are completed.

We agree with the district court. The claims recite multiplying “the” inner code with “the” outer code to create a preamble “sequence.” Both the inner code and outer code are sequences of numbers. The plain meaning of multiplying “the” codes together is that the entire sequences are multiplied together after they have been formed. If claim 17 was directed to a method that multiplied only parts of the inner and outer code together, it would not recite multiplying “the” codes together to form the preamble sequence. The more natural reading of the claim language supports the district court’s finding that

the inner and outer codes must be fully formed before they are multiplied together.

The specification supports this reading. When discussing multiplying the inner and outer codes, the specification describes forming an inner and outer code and then multiplying the codes together:

The present invention provides a method for generating preamble sequences in a CDMA communication system. The method comprises forming *an* outer code and *an* inner code at a mobile station. The mobile station *then* multiplies *the* outer code by *the* inner code to generate a preamble sequence.

'559 patent at col. 2, ll. 52-57 (emphasis added).

Because it is supported by the plain meaning of the claim language and the specification, we affirm the district court's claim construction.

Because this construction was the basis for the district court's grant of summary judgment of non-infringement, we need not reach the court's construction of "a set of orthogonal codewords." Accordingly, we affirm the district court's grant of Apple's motion for summary judgment of non-infringement of the '559 patent based upon its construction that the steps of claim 17 be performed in the sequence described above.

Motorola's '712 patent

The '712 patent discloses a system for encrypting data communications. The district court found that the claimed "transmit overflow sequence number," or TOSN, is "never transmitted" to the receiver in the claimed system. Because the counterpart to the TOSN in the accused products *is* transmitted to the receiver, the district court granted Apple's motion for summary judgment of non-infringement. We agree with the district court's

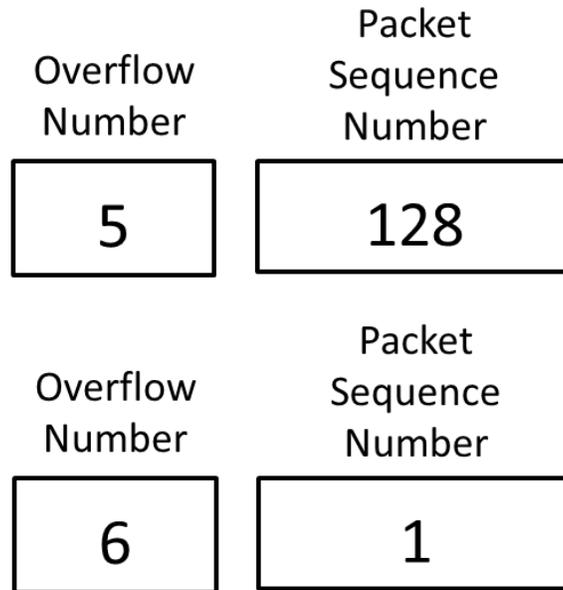
construction and therefore affirm its grant of summary judgment.

Claim 17 of the '712 patent, with relevant limitations emphasized, recites:

In a communication system having a physical layer, data link layer, and a network layer, a method for providing cryptographic protection of a data stream, comprising:

- (a) assigning a packet sequence number to a packet derived from a data stream received from the network layer;
- (b) updating a *transmit overflow sequence number* as a function of the packet sequence number; and
- (c) encrypting, prior to *communicating the packet and the packet sequence number* on the physical layer, the packet as a function of the packet sequence number and the transmit overflow sequence number.

'712 patent at col. 8, l. 65 - col. 9, l. 12. The specification explains that, in order to encrypt and decrypt the data being transmitted, the invention assigns each "packet" of data both a "packet sequence number" and an overflow number. *See id.* at abst; col. 5, ll. 13-15.



The “key” used to encrypt and decrypt the data includes both the packet sequence number and the overflow number. The packet sequence numbers are assigned sequentially up to a maximum. Once the maximum is reached, the packet sequence number count “rolls over” and begins again from number one. For example, if the maximum is 128, after 128 is assigned to a packet of data, the next packet is assigned a packet sequence number of one. *Id.* at col. 4, ll. 15-17. The overflow counter counts the number of times the packet sequence number rolls over. *Id.* at col. 3, ll. 54-55, 65-68. Thus, as demonstrated in the above illustration, each time the packet sequence number rolls over, the overflow sequence number increases by one. *Id.*

On the transmission side, the overflow number is called the TOSN. On the receiving side, it is called the receiving overflow sequence number (“ROSN”). In this manner, the key to encrypt and decrypt the data includes both a packet sequence number and an overflow number. When the packets of data are transmitted, the claimed

system also transmits the packet sequence number. *Id.* at col. 5, ll. 29-32; col. 9, ll. 7-9. The specification does not describe transmitting the TOSN or any other overflow number. *Id.* Instead, the receiver couples the packet sequence number it receives with a ROSN it generates and uses these two numbers to decrypt the data packet.

The specification supports the district court's construction that the TOSN is never transmitted. First, the claims recite a TOSN, not a generic overflow sequence number. The specification plainly describes transmitting certain aspects of the system (the data packet, the packet sequence number) but never suggests that the TOSN is part of that transmission. Nor is it necessary for the TOSN to be transmitted. If it were, there would be no need for the receiver to generate a ROSN. Further, if both the TOSN and packet sequence number were transmitted, an eavesdropper could intercept the *entire key* needed to decrypt the message. This would defeat the invention's purpose of providing increased security by not transmitting the entire key.

Statements made by Motorola during prosecution of a related Japanese patent further support this construction. Before the Japan Patent Office, Motorola distinguished the prior art by explaining, with the included emphasis, that "the overflow sequence number is never transmitted." Motorola further explained that, because the TOSN is never transmitted, "there is no chance to intercept the overflow sequence number; thus, [the invention] provides a higher level of security." Motorola made this argument on more than one occasion. The Japanese application claims priority to the PCT application that issued in the United States as the '712 patent. Both the Japanese application and the '712 patent have the same specification, and the Japanese application included an identical claim to claim 17 at the time of Motorola's statements.

Our precedent does not precisely address the impact of statements such as Motorola's here. Motorola's description of the TOSN came after the '712 patent issued and was made in front of a foreign patent office. This court has previously found that statements made in related, later-prosecuted U.S. patents may inform the meaning of earlier issued claims. *See, e.g., Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1350 (Fed. Cir. 2004). In *Microsoft*, the court noted that "any statement of the patentee in the prosecution of a related application as to the scope of the invention would be relevant to claim construction, and the relevance of the statement made in this instance is enhanced by the fact that it was made in an official proceeding in which the patentee had every incentive to exercise care in characterizing the scope of its invention." *Id.* (emphasis added). Based upon this reasoning, the *Microsoft* court concluded that the patentee's statements made during the prosecution of a later patent were relevant to an earlier issued patent that shared a common specification. *Id.* Of course, statements made in unrelated applications are not relevant to claim construction. *See, e.g., Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1167 (Fed. Cir. 2004) (explaining that an unrelated patent or application is one that does not "have a familial relationship" with the patent at issue); *Abbott Labs. v. Dey, L.P.*, 287 F.3d 1097, 1105 (Fed. Cir. 2002) (finding applications unrelated when they had "no formal relationship and were presented to the patent office as patentably distinct inventions").

This court has also considered statements made before a foreign patent office when construing claims if they are relevant and not related to unique aspects of foreign patent law. *See, e.g., Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1290 (Fed. Cir. 2009) ("While statements made during prosecution of a foreign counterpart to a U.S. patent application have a narrow application to U.S. claim construction . . . in this case the JP '199 application

is part of the prosecution history of the '507 patent itself") (internal citations omitted); *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1374 (Fed. Cir. 2005) (considering the patentee's arguments before the European Patent Office (EPO) and concluding that a "blatant admission by this same defendant before the EPO clearly support[ed]" the court's construction); *Tanabe Seiyaku Co., v. U.S. Int'l Trade Comm'n*, 109 F.3d 726, 733 (Fed. Cir. 1997); *Caterpillar Tractor Co. v. Berco, S.p.A.*, 714 F.2d 1110, 1116 (Fed. Cir. 1983). *But see AIA Eng'g Ltd. v. Magotteaux Int'l S/A*, 657 F.3d 1264, 1279 (Fed. Cir. 2011) ("[O]ur precedent cautions against indiscriminate reliance on the prosecution of corresponding foreign applications in the claim construction analysis."); *Pfizer, Inc. v. Ranbaxy Labs. Ltd.*, 457 F.3d 1284, 1290 (Fed. Cir. 2006) ("[S]tatements made during prosecution of foreign counterparts to the '893 patent are irrelevant to claim construction because they were made in response to patentability requirements unique to Danish and European law.").

The principles illustrated in these decisions provide ample support for holding Motorola to the statements made during Japanese prosecution. Motorola's statements that the TOSN "is never transmitted" to the receiver could not be clearer. *See Gillette*, 405 F.3d at 1374 (holding party to "blatant admission" in argument made to EPO). Motorola also explained, more than once, that not transmitting the TOSN improves the security of the claimed system. This explanation is consistent with the claims and the invention described in the specification. *See AIA*, 657 F.3d at 1279 (noting concerns regarding differences in foreign patent law). Thus, as in *Microsoft*, the statements were "made in an official proceeding in which the patentee had every incentive to exercise care in characterizing the scope of its invention." 357 F.3d at 1350. Further, the two patents are related and share a familial relationship. They both claim priority to the

same PCT application. Both specifications are the same. And, at the time Motorola made its statements to the Japanese patent office, the Japanese application contained a claim identical to claim 17. Thus, the construction supported by the specification is also supported by Motorola's statements before the Japan patent office. We hold that it was not error for the district court to rely upon Motorola's statements to the Japan Patent Office. As such, we affirm the district court's construction.

The district court granted Apple's motion for summary judgment of non-infringement based upon its construction of claim 17. On appeal, Motorola does not dispute that Apple does not infringe under this construction. Accordingly, we affirm the district court's grant of summary judgment of non-infringement of the '712 patent.

ADMISSIBILITY OF DAMAGES EXPERT EVIDENCE

In preparation for trial on the patent infringement claims still at issue, the parties presented expert testimony supporting their damages calculations. Both parties challenged the admissibility of the other side's expert evidence. The district court held a *Daubert* hearing at which the experts testified and the parties presented oral arguments regarding admissibility. Subsequently, the district court excluded nearly all of both parties' expert evidence relating to damages for infringement. Not all of these decisions are before us. On appeal, Apple argues that the proposed testimony of its damages expert regarding the '949 and '263 patents is admissible. Motorola argues that the proposed testimony of its damages expert for the '898 patent is admissible. Because the district court erred in its decision to exclude the parties' expert evidence, we reverse.

The legal framework for admission of expert testimony is provided by the Federal Rules of Evidence, along with *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579

(1993) and its progeny. See FED. R. EVID. 702, 703. In *Daubert*, the Court addressed the proper standard for admitting expert testimony and emphasized that the focus “must be solely on principles and methodology, not on the conclusions that they generate.” 509 U.S. at 595. In *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999), the Court clarified that the district court’s “gatekeeping obligation” applied to all expert testimony. 526 U.S. at 147. Subsequently, “Rule 702 was amended in response to *Daubert* and cases applying it, including *Kumho Tire*.” *Micro Chem., Inc. v. Lextron, Inc.*, 317 F.3d 1387, 1391 (Fed. Cir. 2003).

Rule 702 states:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

FED. R. EVID. 702. Rule 703 states:

An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be ad-

mitted. But if the facts or data would otherwise be inadmissible, the proponent of the opinion may disclose them to the jury only if their probative value in helping the jury evaluate the opinion substantially outweighs their prejudicial effect.

FED. R. EVID. 703.

Under these rules and precedent, a district court judge, acting as a gatekeeper, may exclude evidence if it is based upon unreliable principles or methods, or legally insufficient facts and data. *See, e.g., Smith v. Ford Motor Co.*, 215 F.3d 713, 718 (7th Cir. 2000) (“We emphasize that the court’s gatekeeping function focuses on an examination of the expert’s methodology.”); *Daubert*, 509 U.S. at 595 (“The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate.”); *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 854 (Fed. Cir. 2010) (stating that “*Daubert* and Rule 702 are safeguards against unreliable or irrelevant opinions, not guarantees of correctness”) (applying Fifth Circuit law); *Walker v. Soo Line R. Co.*, 208 F.3d 581, 587 (7th Cir. 2000) (“The critical point is that Dr. Pliskin employed a proper methodology to determine Mr. Walker’s pre-incident IQ.”).

A judge must be cautious not to overstep its gatekeeping role and weigh facts, evaluate the correctness of conclusions, impose its own preferred methodology, or judge credibility, including the credibility of one expert over another. These tasks are solely reserved for the fact finder. *See, e.g., Smith*, 215 F.3d at 718 (“The soundness of the factual underpinnings of the expert’s analysis and the correctness of the expert’s conclusions based on that analysis are factual matters to be determined by the trier of fact.”); *Stollings v. Ryobi Techs., Inc.*, 725 F.3d 753, 766 (7th Cir. 2013) (“An expert may provide expert testimony based on a valid and properly applied methodology and still offer a conclusion that is subject to doubt. It is the

role of the jury to weigh these sources of doubt.”). As the Seventh Circuit noted in *Stollings*, “the jury must still be allowed to play its essential role as the arbiter of the weight and credibility of expert testimony.” 725 F.3d at 765; *see also Lees v. Carthage Coll.*, 714 F.3d 516, 526 (7th Cir. 2013).

That the gatekeeping role of the judge is limited to excluding testimony based on unreliable principles and methods is particularly essential in the context of patent damages. This court has recognized that questions regarding which facts are most relevant or reliable to calculating a reasonable royalty are “for the jury.” *i4i*, 598 F.3d at 856 (“When the methodology is sound, and the evidence relied upon sufficiently related to the case at hand, disputes about the degree of relevance or accuracy (above this minimum threshold) may go to the testimony’s weight, but not its admissibility.”); *see also Micro Chemical*, 317 F.3d at 1392.

This court has also recognized that estimating a “reasonable royalty” is not an exact science. As such, the record may support a range of “reasonable” royalties, rather than a single value. Likewise, there may be more than one reliable method for estimating a reasonable royalty. *See, e.g., In re Innovatio IP Ventures, LLC Patent Litig.*, MDL 2303, 2013 WL 5593609, at *30-*40 (N.D. Ill. Oct. 3, 2013) (undertaking a detailed evaluation of the different methods proposed by the parties of valuing the patents at issue). For example, a party may use the royalty rate from sufficiently comparable licenses, value the infringed features based upon comparable features in the marketplace, or estimate the value of the benefit provided by the infringed features by a comparing the accused product to non-infringing alternatives. All approaches have certain strengths and weaknesses and, depending upon the facts, one or all may produce admissible testimony in a single case. It is common for parties to choose different, reliable approaches in a single case

and, when they do, the relative strengths and weaknesses may be exposed at trial or attacked during cross-examination. That one approach may better account for one aspect of a royalty estimation does not make other approaches inadmissible. For example, actual royalties paid for technologies similar to the claims at issue may *inherently* account for available, non-infringing alternatives. On the other hand, an analytical comparison of the same non-infringing alternatives to the claims may more *directly* account for this cost. The fact that one of these methods may be said to more accurately value this aspect of a reasonable royalty calculation does not, necessarily, make the other approach inadmissible.

With this legal framework in mind, we review the district court's damages rulings. In doing so, we apply Seventh Circuit law to the question of admissibility. *See, e.g., Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1465 (Fed. Cir. 1998). The Seventh Circuit reviews *de novo* whether the district court applied the proper legal framework; but reviews decisions to admit or exclude expert testimony under this framework for an abuse of discretion. *See United States v. Parra*, 402 F.3d 752, 758 (7th Cir. 2005) (*citing United States v. Allen*, 269 F.3d 842, 845 (7th Cir. 2001)).

Apple's '949 Patent

As to the '949 patent, we find that the district court improperly excluded Apple's proposed expert testimony on damages. First, as discussed above, the district court based its damages analysis on an incorrect claim construction. This error, alone, would require reversal and remand because the erroneous claim construction here tainted the district court's damages analysis. *See, e.g., Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1373 (Fed. Cir. 2008) (vacating ruling that patentee was not entitled to damages and remanding for reconsideration based upon modified claim construction); *Texas Digital*

Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1216 (Fed. Cir. 2002) (vacating damages award where district court provided erroneous claim constructions to the jury). Second, the district court erred by not considering the full scope of the asserted claims, questioning the conclusions of Apple's expert, and substituting its own opinion, rather than focusing on the reliability of the principles and methods used or the sufficiency of the facts and data relied upon. These errors also require reversal and remand.

In order to estimate the value of the asserted claims of the '949 patent, Apple's expert (Brian W. Napper) analyzed Apple's Magic Trackpad ("Trackpad").² The Trackpad is a touchpad for use with Mac computers in place of a mouse. Much like a touchscreen, it has a tactile sensor that detects finger contacts and translates them into computer commands. A user touches the Trackpad with her fingers in order to scroll through documents or translate content on the computer screen. The Trackpad recognizes twelve finger gestures, including a vertical scrolling gesture and a horizontal scrolling gesture. The decision to use the Trackpad as a comparable product was supported by the testimony of one of Apple's technical experts, Dr. Stephen Feiner, who concluded that the touch gestures of the Trackpad are "comparable or similar" to the claimed features of the '949 patent. Further, Napper contended that the Trackpad features most similar to the asserted claims (such as the vertical scrolling and horizontal scrolling features) are the most used touch features of the Trackpad. Thus, Napper provided factual support

² Because much of Napper's expert report is confidential, we are limited to providing an overview of his methodology and application but cannot include many of the supporting details.

for his contention that a Trackpad includes features comparable to the claimed features.

In order to isolate the value of the Trackpad's touch features, Napper began by comparing the price of the Trackpad to that of a traditional computer mouse. Napper opined that the price difference between these products could be attributed to two differences: the Trackpad's touch features and its wireless connectivity, neither of which is present in a traditional mouse. Because wireless connectivity is not part of the asserted claims, Napper discounted his royalty based upon the estimated value of wireless connectivity in this context. Napper estimated this value by comparing the price of two sets of wired and wireless mice and using the midpoint price difference as a discount.

Napper further discounted his royalty calculation to account for Trackpad touch features that are outside the scope of the asserted claims. Specifically, Napper concluded that a subset of the Trackpad touch features were "similar or comparable" to the asserted features. Thus, he reduced his royalty estimate by a proportional amount to account for the extra features. Following this procedure, Napper arrived at a reasonable royalty.

Napper then compared his royalty calculation with royalty rates paid by Motorola in licenses for related touch screen technology. Napper concluded that, because the technology at issue in those licenses was similar but inferior, and because the parties to the license were not direct competitors, Motorola would have been willing to pay a higher royalty for a license to the asserted claims of the '949 patent than it had paid in those licenses.

As a possible design alternative, Napper testified that Motorola could have removed the asserted functionality from its products. Napper noted that this would create a less functional touchscreen due to specific technical reasons discussed in Dr. Feiner's report. According to

Napper, this would adversely impact the user's experience of the touchscreen and create user frustration, thereby resulting in a less desirable product. Napper concluded that this alternative would not produce a reasonable estimate upon which to base damages.

The district court reviewed Napper's expert report and excluded all of his proposed testimony for the '949 patent. In large part, the court's analysis incorporated, and was based upon, its incorrect claim construction, which limited the claims to products containing a pre-loaded Kindle application that uses a tap gesture to go to the next page. *See, e.g., Apple, Inc. v. Motorola, Inc.*, 1:11-CV-08540, 2012 WL 1959560 at *7 (N.D. Ill. May 22, 2012) ("At this point in the litigation the dispositive element of the '949 patent is the use of a tap on the right-hand side of the screen to switch to the next page of a Kindle book that has been loaded on the cell phone"); *see id.* at *7-8 (discussing design alternatives only to the tap gesture). This overly narrow view of the claims led the court to conclude, incorrectly, that much of Napper's analysis was too far removed from the asserted claims.

Although it nearly exclusively relied on this narrow claim construction, the district court did recognize that Napper's expert report was focused on the full (and proper) scope of the claims. In light of this, the court considered whether Napper's proposed testimony provided a reliable basis for estimating the value of another single claim limitation, the "vertical scrolling feature."³ The court found that it did not, concluding that "the fact that many consumers will pay more for a Magic Trackpad than for a mouse tells one nothing about what they will pay to avoid occasionally swiping unsuccessfully because their swiping finger wasn't actually vertical to the screen."

³ Hence, the court did not consider Napper's expert testimony in light of the full scope of the asserted claims.

Thus, the court concluded that any comparison to a Trackpad was an “inadequate” method of estimating the value of either the vertical scrolling feature or the tap for the next page feature.

Aside from relying on an incorrect claim construction, the district court erred by not considering the full scope of infringement. At no point did the court ask or consider whether Napper had used reliable principles and methods, or sufficient data, to value the *entire scope* of the asserted claims. Consequently, the district court incorrectly focused on individual claim limitations in isolation when evaluating the reliability of Napper’s methods. It is certainly conceivable that an otherwise sound methodology could appear unreliable (or, indeed, irrelevant) when applied to a single limitation, or a subset of limitations, rather than to the full set of infringed claims. This is why the proper inquiry evaluates the expert’s methodology in view of the full scope of the infringed claims. See 35 U.S.C. § 284 (“[D]amages adequate to compensate *for the infringement . . .* a reasonable royalty for the use made of *the invention* by the infringer.”) (emphasis added); *Gen. Motors Corp. v. Devex Corp.*, 461 U.S. 648, 655 (1983) (“Congress expressly provided in § 284 that the court ‘shall award the claimant damages *adequate to compensate* for the infringement.”) (emphasis in original); Robert A. Matthews, Jr., *Annotated Patent Digest* § 30:6 (2014) (“All claim constructions define the bounds of what infringes, and therefore also define the bounds of what activity infringement damages are applicable to.”). Thus, the proper question is not whether a comparison to the Trackpad accurately values one of the claimed finger gestures. Rather, we must ask, with the entire scope of the asserted claims and the correct claim construction in mind, whether Napper employed reliable principles and methods, reliably applied them, and relied upon legally sufficient facts or data. We find that he did.

Contrary to the district court's determination, Napper's methodology is not inherently unsound; rather it is "the product of reliable principles and methods." FED. R. EVID. 702. This court has upheld the use of similar methods involving comparable benchmark products in the past. *See, e.g., i4i*, 598 F.3d at 853-854; *see also VirnetX Inc. v. Apple Inc.*, 925 F. Supp. 2d 816, 839 (E.D. Tex. 2013). Napper's methodology focused on the claimed technology. As discussed, Napper began with an existing product containing features he contended were similar to the asserted features (the Trackpad). Next, Napper attempted to isolate the value of these similar features by valuing other, non-claimed features of the Trackpad and subtracting this value. To reach a reasonable royalty, Napper then compared his resulting royalty to related licenses and rationalized the price differences. Napper also addressed the possibility of removing the asserted features from the accused devices and argued that this would frustrate consumers and devalue the products. In all, Napper's testimony was the product of reliable principles and methods.

Napper also applied these principles and methods in a reliable way and supported them with legally sufficient facts and data. *See* FED. R. EVID. 702. Napper's application was straightforward and adequately supported by Apple's technical experts and Napper's own experience and expertise, the latter of which is not disputed. For example, Napper's assertion that the Trackpad's features are comparable to the asserted features is the result of reliable application. Like the asserted claims, the Trackpad translates finger contacts into computer commands, including some of the same finger contacts and computer commands asserted. Napper also properly relied upon Apple's technical expert to factually support this comparison. To account for the differences between the Trackpad's features and those of the asserted claims, Napper

addressed these differences and discounted his royalty estimate.

In excluding Napper's testimony, the district court reasoned, "that a consumer will pay something for gestural control does not enable an estimation of how much he will pay for a particular improvement in a system of such control." The court also found that there was a more preferable method for valuing the asserted claims that, it believed, would be used in a non-litigation context. Contrary to the district court's assertion, Napper's estimate was not directed to the value of all "gestural control" but to the value of the asserted claims because Napper focused on the asserted features, as described above. *See supra* at 39-41 (describing Napper's identification of similar features, isolation of their value by discounting for unclaimed features, and comparison of royalty rate to similar license agreements). While the district court summarily concluded there was a better way to calculate damages, it did not point to any specific flaws in Napper's Trackpad comparison. For example, the court did not question the testimony of Apple's technical expert that the Trackpad's features are "comparable or similar" to the asserted features. Nor did the court point to any flaws in Napper's method of apportioning the cost of the relevant features in the Trackpad or explain why its preferred method of valuation was superior. Simply because other reliable methods of estimating a reasonable royalty may exist does not, by itself, render Napper's approach inadmissible.

The district court also faulted Napper for not directly estimating what a consumer "will pay to avoid occasionally swiping unsuccessfully because their swiping finger wasn't actually vertical to the screen." But Napper's methodology did estimate what consumers will pay for the infringed features by evaluating what consumers have actually paid for comparable features. More generally, the value a consumer attributes to the infringing feature

may be an important data point for estimating a royalty, but it is not a required piece of information in all cases. Here, the absence of a direct measurement of this value does not topple the entirety of the principles and methods employed by Napper. The statute requires determination of a “reasonable royalty,” not a reasonable consumer price.⁴ As noted, there are multiple reasonable methods for calculating a royalty, and directly estimating the value a consumer places on the infringing feature is not a requirement of admissibility.

Factually, if the Trackpad is not an accurate benchmark, Motorola is free to challenge the benchmark or argue for a more accurate benchmark. But such an argument goes to evidentiary weight, not admissibility, especially when, as here, an expert has applied reliable methods to demonstrate a relationship between the benchmark and the infringed claims. *See Lees*, 714 F.3d at 596 (“Carthage is free to argue [for] . . . a preferable benchmark, but that again is a matter of evidentiary weight, not admissibility.”). Motorola may address any technical differences between the Trackpad and the asserted features, Napper’s analysis thereof, or the correctness of Napper’s conclusions, during cross-examination. *See Smith v. Ford Motor Co.*, 215 F.3d 713, 718 (7th Cir. 2000) (explaining that disagreements about the factual underpinnings of an expert’s analysis go to

⁴ Depending upon the case, the price a consumer would pay for an infringing feature may not, by itself, shed much light on what an infringer would pay to license that feature. For example, if we assume that a consumer is willing to pay \$5.00 for a certain feature, an infringer may want to retain some of that as profit (and pay only a \$3.00 royalty), but, depending upon the circumstances, it may be willing to sacrifice all of that gain (by paying a \$5.00 royalty) and make its profit elsewhere.

weight, not admissibility). But the district court's decision on the value estimated by Napper short-circuited Motorola's opportunity to rebut Napper's opinion through presentation of its own evidence. *See Gayton v. McCoy*, 593 F.3d 610, 616 (7th Cir. 2010) ("Determinations on admissibility should not supplant the adversarial process; 'shaky' expert testimony may be admissible, assailable by its opponent through cross-examination.") (citing *Daubert*, 509 U.S. at 596). Whether Napper's testimony was the product of reliable principles and methods is the focus of admissibility; whether the testimony produced a correct degree of estimation of the value of the '949 patent is a factual consideration reserved for the fact finder. Here, the district court resolved admissibility based upon its own view on the correct estimate of value for the '949 patent, a question that should have been reserved for the jury.

In sum, the majority of the district court's analysis relied upon its incorrect claim construction and is therefore in error. The district court also erred by not considering the full scope of infringement, and by questioning the factual underpinnings and correctness of Napper's testimony, rather than the reliability of his principles and method and the sufficiency of the data upon which he relied. The district court's exclusion of Napper's expert testimony regarding the '949 patent is therefore reversed.

Apple's '263 Patent

The district court also excluded Apple's damages evidence related to the '263 patent because Apple's expert relied upon information provided by a technical expert hired by Apple. The district court subsequently granted Motorola's motion for summary judgment that Apple was entitled to no damages for infringement of the '263 patent. We reverse the district court's decision to exclude Apple's expert testimony and therefore vacate the court's grant of summary judgment regarding the '263 patent.

Apple's damages expert, again Dr. Napper, opined that there were two approaches for designing around the asserted claims of the '263 patent. The first approach would require Motorola to redesign the computer chip in its phones and also require the application providers (the companies behind products such as Facebook and YouTube) to redesign the applications that utilize streaming video or audio content. Napper estimated the cost of this approach at the time of infringement but concluded that this design around would have been practically unworkable for technical reasons unimportant here. The other design around option identified by Napper involved Motorola replacing a chip on its phones or adding an additional chip. To estimate this cost, Napper used a chip identified by one of Apple's technical experts, Dr. Nathan Polish. Based upon facts and data made available to Napper by Polish, Napper concluded that it would have been more expensive to design around via this second option. Faced with these choices, Napper arrived at a set figure which he concluded Motorola would have been willing to pay as a reasonable royalty because it represented the lesser of the two options.

The district court excluded Napper's proposed testimony for the sole reason that Napper relied upon an expert hired by Apple, Dr. Polish, for the identity of the replacement chip. The district court concluded that, had Polish been the only person competent to opine on the proper substitute chip, then Napper's testimony would have been admissible. The court reasoned:

imagine [a] . . . conversation between Napper and Motorola, which I'll pretend hired Napper to advise on how at lowest cost to duplicate the patent's functionality without infringement: Motorola: 'What will it cost us to invent around, for that will place a ceiling on the royalty we'll pay Apple?' Napper: 'Brace yourself: \$35 million greenbacks.' Motorola: 'That sounds high; where did you get

the figure?’ Napper: ‘I asked an engineer who works for Apple.’ Motorola: ‘*Dummkopf!* You’re fired.’

Apple, Inc., 2012 WL 1959560 at *9. Based on this hypothetical conversation, the district court excluded all of Napper’s proposed testimony. *Id.*

The district court’s exclusion of Napper’s proposed testimony was erroneous. The district court’s decision states a rule that neither exists nor is correct. Experts routinely rely upon other experts hired by the party they represent for expertise outside of their field. *See, e.g., Dura Automotive Sys. of Ind., Inc. v. CTS Corp.*, 285 F.3d 609, 609-613 (7th Cir. 2002) (“[I]t is common in technical fields for an expert to base an opinion in part on what a different expert believes on the basis of expert knowledge not possessed by the first expert.”); *Monsanto Co. v. David*, 516 F.3d 1009, 1015 (Fed. Cir. 2008) (“Numerous courts have held that reliance on scientific test results prepared by others may constitute the type of evidence that is reasonably relied upon by experts for purposes of Rule of Evidence 703.”). Rule 703 explicitly allows an expert to rely on information he has been made aware of “if experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject.” FED. R. EVID. 703; *see also Monsanto*, 516 F.3d at 1016. This Rule does not predicate admissibility on the source of the facts or data or, in particular, on whether the source is employed by either of the parties.

Consistent with Rule 703, patent damages experts often rely on technical expertise outside of their field when evaluating design around options or valuing the importance of the specific, infringing features in a complex device. *Monsanto*, 516 F.3d at 1015. For example, a party may want to explain, from a technical perspective, why one potential design alternative is less expensive in order to justify a lower royalty calculation. Patent dam-

ages calculations are often intertwined with highly technical issues precisely because damages must be based on the scope of infringement, often an involved technical question. Despite this precedent, the district court erroneously found that Apple cannot support its damages calculation with information from a technical expert it has hired.

In particular, the district court expressed concern that Dr. Polish's technical advice was incurably biased because he was hired by Apple. *See Apple, Inc.*, 2012 WL 1959560 at *9 (Napper "obtained essential information, namely the identity of the chip that would avoid infringement, from an agent of the party rather than a disinterested source."). While it may be true that the potential for bias is an inherent concern with respect to all hired experts, this concern is addressed by the weight given to the expert's testimony, not its admissibility. *See, e.g., Tagatz v. Marquette Univ.*, 861 F.2d 1040, 1042 (7th Cir. 1988) ("Hired experts, who generally are highly compensated – and by the party on whose behalf they are testifying – are not notably disinterested."); *Ethicon*, 135 F.3d at 1465 ("Furthermore, a witness's pecuniary interest in the outcome of a case goes to the probative weight of testimony, not its admissibility."). To the extent bias exists, cross-examination and the testimony of an opposing expert may be used to "expose" it. *Id.*; *see also Annotated Patent Digest*, at § 44:43.150 ("That an expert may have a bias or self interest towards a party on whose behalf he or she is offering testimony, without more, generally does not require disqualifying the expert so long as the expert appears to be providing an objective analysis. Bias goes to the weight of the testimony, not necessarily its admissibility."). In *Tagatz*, the court recognized that, in the context of a party testifying as his own expert, "the trier of fact should be able to discount for so obvious a conflict of interest." 861 F.2d at 1042. Here, if the chip Dr. Polish has suggested is not the best or cheapest alternative,

Motorola is free to address this issue on cross examination and through the testimony of its own expert witness. *See, e.g., Walker*, 208 F.3d at 589-90; *Stollings*, 725 F.3d at 765; *Gayton*, 593 F.3d at 616. The issue is one of evidentiary weight and not admissibility.

The district court also implied that Dr. Polish's recommendation of a particular replacement chip is not the type of information that an expert in the field would reasonably rely upon outside the context of litigation. *See Apple, Inc.*, 2012 WL 1959560 at *9-*10; *see also Kumho*, 526 U.S. at 152 (noting that an expert must employ "in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."). We disagree. As noted above, Rule 703 requires that the expert testimony be tied to the facts of the case. *See id.* at 153-54. If Apple hired Napper to value the asserted claims of the '263 patent outside of litigation and there was technical issue Napper did not understand, it would be reasonable for Napper to ask a technical expert hired by Apple. For example, it would be reasonable for an Apple expert to explain the background of Apple's patent, how the claimed invention fits into a larger product, or the key advances over the prior art. All of this information would be outside of Napper's expertise but helpful, if not critical, to his task of valuing the patent. Indeed, if the technical information needed was within the expertise of Apple employees, it would be wasteful for Apple, if not otherwise disadvantageous, not to provide it and, in certain circumstances, even deceitful. Overall, outside of litigation, it would be reasonable, and quite common, for Napper to rely on technical information provided by Apple or one of its experts in order to value the cost to design around Apple's technology. Indeed, such an approach would carry the same intellectual rigor as the approach employed in the courtroom in this case.

A rule that would exclude Apple's damages evidence simply because it relies upon information from an Apple

technical expert is unreasonable and contrary to Rules 702 and 703 and controlling precedent. As a result, we reverse the district court's exclusion of Napper's testimony regarding the '263 patent and vacate its grant of summary judgment regarding damages.

Motorola's '898 Patent

The district court excluded all of Motorola's proposed testimony related to damages for infringement of the '898 patent and subsequently granted Apple's motion for summary judgment that Motorola was entitled to no damages. We affirm the exclusion of the testimony that relied on Motorola's licensing expert, Charles Donohoe. The district court erred, however, when it excluded the remainder of Motorola's proposed expert testimony because Motorola's analysis of comparable licenses used "reliable principles and methods," and Motorola reliably applied them to sufficient facts and data to estimate the overall value of the '898 patent. Accordingly, we reverse the court's exclusion of the remainder of Motorola's damages expert testimony and vacate the court's grant of summary judgment.

Motorola's damages expert was Carla S. Mulhern. Mulhern's proposed testimony included an analysis of license agreements between Motorola and "all of the major" cellular phone makers in the United States, except for Apple. While the terms of each agreement vary, all generally cover Motorola's entire standard-essential patent ("SEP") portfolio (hundreds of patents), of which the '898 patent is a very small part. Some of the licenses were cross-licenses, wherein Motorola obtained a license to third parties' SEPs. The royalty base in each of these licenses was the sale price of a cell phone. According to Mulhern, these licenses show that Motorola has previously received a royalty rate of approximately 2.25% for a license to its entire SEP portfolio. Mulhern also examined licenses for SEP portfolios covering "cellular communica-

tions technology” between Apple and third parties. These licenses also typically included cross-license agreements. Apple’s royalties under these agreements were in a similar range.

Because Apple is not alleged to infringe all of the patents in Motorola’s SEP portfolio, Mulhern attempted to separate out the value of the ’898 patent from the total value of the portfolio. Mulhern recognized that individual patents in a SEP portfolio may have different values, based upon, for example, the relative importance of the patent to the standard or to the technology as a whole. Specifically, Mulhern opined that economic studies have shown that patent values are skewed with many patents having little or no value and a small minority having significant value. Mulhern also noted that, during a hypothetical negotiation, a licensee would expect to pay less for a license to a few patents than for an entire portfolio of standard-essential patents. Mulhern concluded, based upon the expert reports of Motorola’s technical experts, that the ’898 patent represented an important innovation and was “disproportionately valuable in the context of Motorola’s overall portfolio.”

Mulhern opined that licensing one patent from a large SEP portfolio was not a typical industry practice because, in order to use a standard, a license to all essential patents would be needed. In the “real world,” according to Mulhern, SEPs are only licensed in large portfolios. Mulhern cited proposed testimony of other experts with experience in the licensing industry to support this claim. Despite this industry practice, Mulhern recognized that the “hypothetical negotiation construct would force Motorola to enter into a license for just a subset of its standard-essential patents.” Such a license, according to Mulhern, would capture a “nonlinear” share of the portfolio rate because it would force Motorola to, inefficiently, license its patents a few at a time. In other words, the

first few patents licensed from the portfolio would command a higher royalty rate than those that followed.

Based upon this reasoning, Mulhern opined that the first few patents would typically command 40%-50% of the entire portfolio rate. Mulhern supported this 40%-50% estimate with: the proposed testimony of another of Motorola's licensing experts, Charles Donohoe; the statements of a Motorola licensing executive; the statements of a former Ericsson licensing executive; and her knowledge of "IBM's well-known licensing policy in the 1980s and early 1990s." According to Mulhern, IBM would offer a license to a single patent in its portfolio, which totaled over 10,000 patents, at a royalty rate of 1% of net sale price. Each successive patent would cost an additional 1%, up to the fifth patent licensed. Beyond five patents, or a 5% royalty, the rate would not increase. Based upon this analysis, Mulhern concluded, as one estimate, that the '898 patent was worth 40%-50% of Motorola's SEP portfolio rate.

As an alternative and more conservative estimate, Mulhern opined that the '898 patent represented 5% of the "actually-essential" patents in Motorola's portfolio. This estimate did not rely upon Mulhern's "non-linear" valuation theory, but rather was based upon a linear "modified patent counting method." Under this approach, Mulhern concluded that Apple would have been willing to pay 5% of the entire SEP portfolio rate for a license to the '898 patent.

Mulhern also recognized that Apple could have avoided infringement by introducing an iPhone only on the Verizon network, which did not use the GSM/UTMS networks. Mulhern addressed Apple's design around cost at the time of the hypothetical negotiation by first concluding that the '898 patent was essential to the GSM/UTMS mobile networks and that, therefore, Apple could not use these networks without a license. Mulhern

outlined purported impracticalities with the Verizon option, including confidential details we decline to recite here. Stopping there, Mulhern did not specifically estimate the cost to Apple of pursuing a Verizon phone in place of an AT&T phone.

The district court assumed that the royalty rates proposed by Motorola satisfied its fair, reasonable and non-discriminatory (“FRAND”) licensing obligations but, nevertheless, excluded all of Mulhern’s proposed testimony because she “failed to consider the range of plausible alternatives . . . facing Apple.” Specifically, the district court concluded that Mulhern’s “failure to analyze” the possibility of Apple contracting with Verizon made her method unreliable. It appears the district court was concerned with Mulhern’s failure to specifically value the cost of contracting with Verizon in place of AT&T. *See Apple, Inc.*, 2012 WL 1959560 at *11 (“Mulhern offers no evidence that it would have been \$347 million more costly to Apple” to contract with Verizon over AT&T.). Regarding Donohoe’s proposed testimony, the district court noted that his declaration did not offer any basis for selecting the correct nonlinear royalty rate. In addition, Donohoe “admitted that he knows nothing about the portfolio that includes the ’898 patent; his 40-to-50 percent figure is a statement about portfolios of standards-essential telecommunications patents in general.”

We agree with the district court that Donohoe’s testimony is insufficient to support an award of damages. Indeed, the district court would have been justified in excluding Donohoe’s testimony as inherently unreliable based on his failure to tie the 40%-50% rate to the technological contribution of the patent to the standard-essential patent portfolio. We have consistently explained that proof of damages must be carefully tied to the claimed invention itself. *See ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 869 (Fed. Cir. 2010); *Riles v. Shell Exploration & Prod. Co.*, 298 F.3d 1302, 1312 (Fed. Cir. 2002) (exclud-

ing patentee's damages model because the expert "[did] not associate his proposed royalty with the value of the patented method at all"). Here, where Donohoe admitted that he knew nothing about the SEP portfolio at issue and did not even purport to link the 40%-50% rate to the claimed invention of the '898 patent, there can be little doubt whether his testimony was tied to the facts of this case.⁵

Mulhern incorporated Donohoe's testimony into her own when she relied on his proposed testimony to opine that the first few patents from a given portfolio would typically command 40%-50% of the entire portfolio rate. The substance of Donohoe's testimony is no more reliable when admitted through Mulhern than through Donohoe himself. We note that the general theory that Donohoe and Mulhern relied upon, that the first patent from a larger portfolio may, in practice, garner a larger royalty than later patents from the same portfolio, is not inherently unreliable. Testimony based upon this theory may be admissible if properly tied to the claimed invention. But here, where a potentially reliable theory is not tied to the facts of the case, the expert testimony is inadmissible. *See, e.g., Kumho*, 526 U.S. at 154-55. For these reasons, we affirm the district court's exclusion of that portion of Mulhern's testimony that was based on Donohoe's declaration.

We disagree with the district court regarding the remainder of Mulhern's testimony. Although Mulhern did not directly estimate the cost to Apple of choosing AT&T over Verizon, Mulhern did "consider" and "analyze" the

⁵ Indeed, as Apple points out, Motorola did not adjust its 40%-50% rate when the '559 patent dropped out of the case on summary judgment, further suggesting that the rate was never tied to the specific patents at issue. *See* Apple Reply Br. 38-39.

possibility of Apple overcoming the difficulties of contracting with Verizon and releasing an iPhone on a different network. While the district court may disagree with Mulhern's conclusions that contracting with Verizon was not desirable or practical and that, therefore, this option need not be specifically valued, this is an issue that Apple could address at trial via cross-examination and presentation of its own expert evidence. *See, e.g., Walker*, 208 F.3d at 589-90; *Gayton*, 593 F.3d at 616. That a party may choose to pursue one course of proving damages over another does not render its expert's damages testimony inadmissible. Nor is there a requirement that a patentee value every potential non-infringing alternative in order for its damages testimony to be admissible.

The district court failed to recognize that Mulhern did construct a cost estimate typically relied upon when calculating patent damages – the cost to license the technology. *See, e.g., Riles*, 298 F.3d at 1313; *Studiengesellschaft Kohle, m.b.H. v. Dart Indus., Inc.*, 862 F.2d 1564, 1568 (Fed. Cir. 1988) (“The patentee’s usual licensing approach should be considered in assessing a reasonable royalty.”). As we have held many times, using sufficiently comparable licenses is a generally reliable method of estimating the value of a patent. *See, e.g., ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1333 (Fed. Cir. 2012); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009) (“The second *Georgia-Pacific* factor is ‘[t]he rates paid by the licensee for the use of other patents comparable to the patent in suit.’”) (*citing Georgia-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)); *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1110 (Fed. Cir. 1996) (“This rate is supported by evidence that Maxwell entered into agreements with other licensees at a royalty rate of \$.10 per pair of shoes.”); *Nickson Indus., Inc. v. Rol Mfg. Co.*, 847 F.2d 795, 798 (Fed. Cir. 1988) (“Where an

established royalty exists, it will usually be the best measure of what is a ‘reasonable’ royalty.”).

This approach is generally reliable because the royalty that a similarly-situated party pays inherently accounts for market conditions at the time of the hypothetical negotiation, including a number of factors that are difficult to value, such as the cost of available, non-infringing alternatives. *See LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012) (“Actual licenses to the patented technology are highly probative as to what constitutes a reasonable royalty for those patent rights because such actual licenses most clearly reflect the economic value of the patented technology in the marketplace.”). For example, in this case, Motorola’s other licensees would have had the option of only releasing a phone on the Verizon network. Thus, the royalty rate agreed to in these licenses, assuming the overall licensing situation is factually comparable, would necessarily account for the cost of this non-infringing alternative.

Here, whether these licenses are sufficiently comparable such that Motorola’s calculation is a reasonable royalty goes to the weight of the evidence, not its admissibility. *See ActiveVideo*, 694 F.3d at 1333. Mulhern’s analysis of comparable licenses used “reliable principles and methods,” and reliably applied them to sufficient facts and data on the record to calculate the overall value of the ’898 patent, including the cost of non-infringing alternatives. FED. R. EVID. 702. With the aid of Apple’s cross-examination and expert testimony, the jury is capable of assigning the appropriate weight to Mulhern’s testimony based upon their judgment of her credibility, factual analysis, and conclusions.

In sum, with the exception of the testimony that relied upon Donohoe’s declaration, we reverse the district court’s exclusion of Mulhern’s proposed testimony. Con-

sequently, we vacate the court's grant of summary judgment regarding damages for infringement.

SUMMARY JUDGMENT

After the district court excluded the majority of the damages expert testimony, both parties moved for summary judgment regarding damages and injunctive relief. Having excluded their damages evidence, the court found that neither party was entitled to *any* damages or an injunction and granted the motions. As noted above, on the basis of our reversal of the district court's admissibility decisions, we vacate the court's grant of summary judgment regarding damages for Apple's '949 and '263 patents and for Motorola's '898 patent. All that remains is the district court's grant of summary judgment that Apple was not entitled to any damages for infringement of the '647 patent and that neither party was entitled to an injunction. As discussed below, we reverse the court's decision that Apple was not entitled to any damages for infringement of the '647 patent, vacate its decision that Apple was not entitled to an injunction, and affirm its decision that Motorola is not entitled to an injunction.

Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." FED. R. CIV. P. 56(c). We review the district court's grant of summary judgment under regional circuit law, which is that of the Seventh Circuit. *See, e.g., MicroStrategy, Inc. v. Bus. Objects, S.A.*, 429 F.3d 1344, 1349 (Fed. Cir. 2005). The Seventh Circuit reviews a grant of summary judgment *de novo*. *See, e.g., Feliberty v. Kemper Corp.*, 98 F.3d 274, 276 (7th Cir. 1996) ("When we review a district court's grant of summary judgment, we consider the record according to the same standards employed by the district court.").

Apple's '647 Patent

Motorola moved for summary judgment that, even assuming the '647 patent was infringed, Apple was not entitled to any damages, including a nominal reasonable royalty. Motorola argued that Apple was not entitled to damages because there was “no evidence upon which Apple may rely to reliably establish or measure any amount of damages” for infringement of the '647 patent.

The district court agreed and concluded that Apple was not entitled to any measure of damages because Apple had failed to show that its measure of damages was correct. We disagree and hold that a finding that a royalty estimate may suffer from factual flaws does not, by itself, support the legal conclusion that zero is a reasonable royalty. *See Dow Chem. Co. v. Mee Indus., Inc.*, 341 F.3d 1370, 1382, n.4 (Fed. Cir. 2003) (“However, the fact that the agreement did not support the specific amount requested by Dow does not thereby mean that it does not support any award at all.”).

Due to the procedural posture in this case, we must assume that the patents at issue are valid and infringed. With infringement assumed, the statute requires the court to award damages “in no event less than a reasonable royalty.” 35 U.S.C. § 284; *see also Dow Chemical Co.*, 341 F.3d at 1381-82 (noting that a district court is obligated to award damages once infringement is found, and reversing a finding of no damages that was based upon a lack of expert evidence). Because no less than a reasonable royalty is required, the fact finder must determine what royalty is supported by the record. *See Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1333 (Fed. Cir. 2004) (holding that “the jury’s finding of no damages cannot be supported” because “the statute requires that damages to a successful claimant in a patent infringement suit shall not be less than a reasonable royalty”); *Riles*, 298 F.3d at 1311 (“The statute guarantees patentees a reasonable

royalty even when they are unable to prove entitlement to lost profits or an established royalty rate.”); *Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co.*, 895 F.2d 1403, 1406 (Fed. Cir. 1990) (“In patent law, the fact of infringement establishes the fact of damage because the patentee’s right to exclude has been violated.”); *Annotated Patent Digest*, § 30:7 (“When a patentee shows infringement, a presumption arises that the patentee is entitled to some form of damages. The Federal Circuit has explained that this presumption arises from the statute once infringement is admitted or proven.”).

If a patentee’s evidence fails to support its specific royalty estimate, the fact finder is still required to determine what royalty is supported by the record.⁶ See *Dow Chem.*, 341 F.3d at 1381-82 (“The statute is unequivocal that the district court must award damages in an amount no less than a reasonable royalty.”); *Norian*, 363 F.3d at 1333; *Lindemann Maschinenfabrik*, 895 F.2d at 1406; *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 836 F.2d 1320, 1327 (Fed. Cir. 1987) (“The requirement to determine actual damages is not diminished by difficulty of determination.”). Indeed, if the record evidence does not fully support either party’s royalty estimate, the fact

⁶ By contrast, if a patentee seeks lost profits and fails to meet its burden, then an award of no lost profits is justified. See *R.R. Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1520 (Fed. Cir. 1984) (affirming district court decision awarding no lost profits, due to lack of proof, but awarding reasonable royalty); *Gustafson, Inc. v. Intersystem Indus. Prods., Inc.*, 897 F.2d 508, 509-10 (1990) (finding, in the lost profits context, “no reversible error in the district court’s . . . awarding no damages to Gustafson because none were proven”). This is because a lost profits award is above and beyond the reasonable royalty floor required by the statute.

finder must still determine what constitutes a reasonable royalty from the record evidence. *See SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 926 F.2d 1161, 1167-68 (Fed. Cir. 1991) (“[T]he factual determination of a reasonable royalty, however, need not be supported, and indeed, frequently is not supported by the specific figures advanced by either party. . . . [T]he district court may reject the extreme figures proffered by the litigants as incredible and substitute an intermediate figure as a matter of its judgment from all of the evidence.”). Certainly, if the patentee’s proof is weak, the court is free to award a low, perhaps nominal, royalty, as long as that royalty is supported by the record. *See Lindemann Maschinenfabrik*, 895 F.2d at 1407-08 (affirming \$10,000 reasonable royalty award because patentee failed to provide sufficient evidence to support a greater award).

Thus, a fact finder may award no damages only when the record supports a zero royalty award. For example, in a case completely lacking any evidence on which to base a damages award, the record may well support a zero royalty award. Also, a record could demonstrate that, at the time of infringement, the defendant considered the patent valueless and the patentee would have accepted no payment for the defendant’s infringement. Of course, it seems unlikely that a willing licensor and willing licensee would agree to a zero royalty payment in a hypothetical negotiation, where both infringement and validity are assumed.⁷

⁷ We note that we know of no case where we found that the record supported an infringement award of a zero royalty. *Id.*; *see also DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1334 (Fed. Cir. 2009) (finding 0% jury royalty award inconsistent with finding of infringement and jury instruction that the jury choose a rate between 6% and 15%). *But see Devex Corp. v. Gen.*

At summary judgment, as is the case here, a judge may only award a zero royalty for infringement if there is no genuine issue of material fact that zero is the only reasonable royalty. Thus, if a patentee raises a factual issue regarding whether it is due any non-zero royalty, summary judgment must be denied. In any event, simply because a patentee fails to show that its royalty estimate is correct does not, by itself, justify awarding a royalty of zero at summary judgment, as the district court did here. *See Dow Chem.*, 341 F.3d at 1382 n.4.

On appeal, Apple points out that not all of its damages expert testimony for the '647 patent was excluded. Specifically, Apple's expert report, prepared by Napper, estimated a royalty based upon the time it allegedly took another smartphone manufacturer, HTC Corporation ("HTC"), to design around the same patent. The United States International Trade Commission ("ITC") issued an exclusion order against HTC based upon infringement of the '647 patent, the same patent Apple asserts here. The ITC gave HTC a four-month grace period before the exclusion order took effect. Based upon this, Napper concluded that four months was a relevant timeframe for designing around the '647 patent. Napper noted that HTC and Motorola would likely have similar resources to develop a design around. Napper estimated that Motorola would lose \$52 million in operating profit based upon the removal of its accused products from the market for this four-month period. Accordingly, Napper concluded that Motorola would be willing to pay a \$52 million royalty.

Motors Corp., 667 F.2d 347, 361 (3d Cir. 1981) ("In the absence of any evidence as to what would constitute a reasonable royalty in a given case, a fact finder would have no means of arriving at a reasonable royalty, and none could be awarded."), *aff'd on other grounds*, 461 U.S. 648 (1983).

The district court noted that it did not exclude this aspect of Napper's proposed testimony. Nevertheless, the court discredited the testimony because the ITC's claim construction differed from the court's and because Napper failed to sufficiently address any differences between the two companies, HTC and Motorola. The court did not, however, identify any differences between HTC and Motorola that undermined Napper's royalty estimate. The court determined that Apple was not entitled to any measure of damages because it had not proven its HTC-based royalty estimate was correct. *See Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 911 (N.D. Ill. 2012) ("Apple has not presented admissible evidence that the *Georgia Pacific* factors support its damages claim.").

The record before us does not support granting summary judgment of no damages. Motorola has not met its burden of demonstrating, as the party who moved for summary judgment, that the record is uncontroverted that zero is the only reasonable royalty.

Other than incorrectly asserting that Apple has no admissible expert evidence, Motorola itself provides no evidence or argument to support a zero royalty. For example, there is nothing in the record suggesting that Apple would have been willing to accept no payment for Motorola's infringement. Nor is there any evidence that, at the time of infringement, Motorola concluded that the '647 patent had no value. To the contrary, Apple has expert evidence on record indicating that it would take four months to design around the '647 patent. Apple's expert estimated the profit lost by Motorola during this design around period based upon Motorola's sales figures for the accused devices. Apple also presented evidence, in arguing for an injunction, that the claimed features of the '647 patent drive consumer demand for its products. The specific reasonable royalty this – and any other record evidence – supports is a factual question reserved for the jury.

The problems that the district court identifies with Apple's HTC-based royalty estimate (a different claim construction before the ITC and potential differences between HTC and Motorola) only serve to illustrate that factual disputes remain.⁸ Hence, the district court's conclusion that Apple's HTC-based estimate was flawed does not establish, as a matter of law, a zero royalty.⁹ See *Norian*, 363 F.3d at 1333; *Dow Chem.*, 341 F.3d at 1382 n.4; *Del Mar*, 836 F.2d at 1327 ("The trial court is required to approximate, if necessary, the amount to which the patent owner is entitled."). Even if Apple had not submitted expert evidence, this alone would not support a finding that zero is a reasonable royalty. See *Dow Chem.*, 341 F.3d at 1381-82 (reversing award of no damages, which was based upon a lack of admissible expert evidence, and remanding for determination of royalty); 7 Donald S. Chisum, *Chisum on Patents* § 20.07[3][a] (2011) ("In considering the question of evidence and certainty of proof required to justify an award of a reasonable royalty, one should distinguish between (1) the existence of damage to a patentee which will support any award and (2) the evidentiary support for a particular rate or quantity as a reasonable royalty. As to the first issue, no specific proof should be required. The premise of the reasonable royalty measure is that a holder of a valid and infringed patent has inherently suffered legal damage at least to the extent of a lost license royalty opportunity."); *Annotated Patent Digest*, § 44:79 ("The use of expert testimony

⁸ Motorola tacitly acknowledges this by arguing on appeal that Apple's evidence is inadmissible, not that it is factually flawed.

⁹ We would be answering a different question if Motorola had moved that Napper's HTC-based calculation was incorrect as a matter of law. In that situation, pointing to flaws in Napper's analysis could be enough to justify summary judgment.

is permissive. Thus, if a patentee's damage expert is excluded, that fact does not automatically deny a patentee a right to recover damages."); FED. R. EVID. 702 ("A witness who is qualified as an expert by knowledge, skill, experience, training, or education *may* testify.") (emphasis added); 35 U.S.C. § 284 ("The court *may* receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.") (emphasis added).

In sum, Motorola has not demonstrated that there is no genuine issue of material fact regarding whether zero is a reasonable royalty for infringement of the '647 patent. Motorola presented no evidence that zero was a reasonable royalty. In contrast, Apple presented admissible evidence that it is entitled to a non-zero royalty. That Apple's royalty estimate may suffer from factual flaws does not, by itself, support the legal conclusion that zero is a reasonable royalty. Accordingly, we reverse the district court's grant of summary judgment.

Apple's Request for an Injunction

The district court granted Motorola's motion for summary judgment that Apple was not entitled to an injunction for infringement of the '949, '263 and '647 patents because Apple had failed to show a causal nexus between any alleged irreparable harm and Motorola's infringement. The district court's analysis necessarily relied upon its overly narrow construction of the claims of the '949 patent. We have reversed the court's claim construction decision, thus altering the potential scope of infringement underlying Apple's injunction request. The scope of infringement permeates an injunction analysis. *See, e.g., Apple Inc. v. Samsung Elecs. Co.*, 735 F.3d 1352, 1363 (Fed. Cir. 2013) ("[T]he purpose of the causal nexus requirement is to show that the patentee is irreparably harmed *by the infringement.*") (emphasis in original). For example, when considering whether to enjoin a product, it

is proper for the court to consider the aggregate harm caused by all of the infringing features, rather than requiring a patentee to address each patent or claim individually. *See id.* at 1365 (“We believe there may be circumstances where it is logical and equitable to view patents in the aggregate.”).

Infringement of multiple patents by a single device may strengthen a patentee’s argument for an injunction by, for example, supporting its argument that the infringed features drive consumer demand or are causing irreparable harm. *Id.* By the same token, we also consider the impact on the general public of an injunction on a product with many non-infringing features. *See id.* at 1372-73 (“We see no problem with the district court’s decision, in determining whether an injunction would disserve the public interest, to consider the scope of Apple’s requested injunction relative to the scope of the patented features and the prospect that an injunction would have the effect of depriving the public of access to a large number of non-infringing features.”).

Accordingly, because we have reversed the district court’s construction of the ’949 patent, we vacate its grant of summary judgment regarding Apple’s request for an injunction.

Motorola’s Request for an Injunction

Apple moved for summary judgment that Motorola was not entitled to an injunction for infringement of the ’898 patent. While we review the district court’s decision to grant or deny an injunction for an abuse of discretion, *Lab. Corp. of Am. Holdings v. Chiron Corp.*, 384 F.3d 1326, 1331 (Fed. Cir. 2004), we review the district court’s grant of summary judgment *de novo*, *Feliberty*, 98 F.3d at 276. The Supreme Court in *eBay Inc. v. MercExchange, L.L.C.* outlined the factors a district court should consider before issuing an permanent injunction, stating that “a plaintiff must demonstrate: (1) that it

has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.” 547 U.S. 388, 391 (2006).

The '898 patent is a SEP and, thus, Motorola has agreed to license it on fair, reasonable, and non-discriminatory licensing (“FRAND”) terms. The district court granted Apple’s motion, stating:

I don’t see how, given FRAND, I would be justified in enjoining Apple from infringing the '898 unless Apple refuses to pay a royalty that meets the FRAND requirement. By committing to license its patents on FRAND terms, Motorola committed to license the '898 to anyone willing to pay a FRAND royalty and thus implicitly acknowledged that a royalty is adequate compensation for a license to use that patent. How could it do otherwise? How could it be permitted to enjoin Apple from using an invention that it contends Apple *must* use if it wants to make a cell phone with UMTS telecommunications capability—without which it would not be a cell *phone*.

Apple, Inc., 869 F. Supp. 2d at 913-14 (emphases in original).

To the extent that the district court applied a *per se* rule that injunctions are unavailable for SEPs, it erred. While Motorola’s FRAND commitments are certainly criteria relevant to its entitlement to an injunction, we see no reason to create, as some *amici* urge, a separate rule or analytical framework for addressing injunctions for FRAND-committed patents. The framework laid out by the Supreme Court in *eBay*, as interpreted by subsequent decisions of this court, provides ample strength and flexibility for addressing the unique aspects of FRAND

committed patents and industry standards in general. 547 U.S. at 391-94. A patentee subject to FRAND commitments may have difficulty establishing irreparable harm. On the other hand, an injunction may be justified where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect. *See, e.g.*, U.S. Dep't of Justice and U.S. Patent and Trademark Office, *Policy Statement on Remedies for Standard-Essential Patents Subject to Voluntary F/RAND Commitments*, at 7-8 (Jan. 8, 2013). To be clear, this does not mean that an alleged infringer's refusal to accept any license offer necessarily justifies issuing an injunction. For example, the license offered may not be on FRAND terms. In addition, the public has an interest in encouraging participation in standard-setting organizations but also in ensuring that SEPs are not overvalued. While these are important concerns, the district courts are more than capable of considering these factual issues when deciding whether to issue an injunction under the principles in *eBay*.

Applying those principles here, we agree with the district court that Motorola is not entitled to an injunction for infringement of the '898 patent. Motorola's FRAND commitments, which have yielded many license agreements encompassing the '898 patent, strongly suggest that money damages are adequate to fully compensate Motorola for any infringement. Similarly, Motorola has not demonstrated that Apple's infringement has caused it irreparable harm. Considering the large number of industry participants that are already using the system claimed in the '898 patent, including competitors, Motorola has not provided any evidence that adding one more user would create such harm. Again, Motorola has agreed to add as many market participants as are willing to pay a FRAND royalty. Motorola argues that Apple has refused to accept its initial licensing offer and stalled negotiations. However, the record reflects that negotia-

tions have been ongoing, and there is no evidence that Apple has been, for example, unilaterally refusing to agree to a deal. Consequently, we affirm the district court's grant of summary judgment that Motorola is not entitled to an injunction for infringement of the '898 patent.

**AFFIRMED-IN-PART, REVERSED-IN-PART,
VACATED-IN-PART, AND REMANDED**

COSTS

Each party shall bear its own costs.

United States Court of Appeals for the Federal Circuit

APPLE INC. AND NEXT SOFTWARE, INC.
(formerly known as NeXT Computer, Inc.),
Plaintiffs-Appellants,

v.

MOTOROLA, INC. (now known as Motorola Solu-
tions, Inc.) AND MOTOROLA MOBILITY, INC.,
Defendants-Cross Appellants.

2012-1548, -1549

Appeals from the United States District Court for the Northern District of Illinois in No. 11-CV-8540, Circuit Judge Richard A. Posner.

RADER, *Chief Judge*, dissenting-in-part.

I join the court's opinion in its entirety, except for the affirmance of the district court's denial of Motorola's request for an injunction. To my eyes, the record contains sufficient evidence to create a genuine dispute of material fact on Apple's posture as an unwilling licensee whose continued infringement of the '898 patent caused irreparable harm. Because of the unique and intensely factual circumstances surrounding patents adopted as industry standards, I believe the district court improperly granted summary judgment. Therefore, on this narrow point, I respectfully dissent in part.

At the outset, a patent adopted as a standard undoubtedly gains value by virtue of that adoption. This enhancement complicates the evaluation of the technology independent of the standardization. By the same token, the standardization decision may also simply reflect and validate the inherent value of the technology advance accomplished by the patent. Untangling these value components (at the heart of deciding whether a putative licensee was “unwilling” to license, and thus irreparable harm and other injunction factors) requires intense economic analysis of complex facts. In sum, right from the theoretical outset, this question is not likely to be susceptible to summary adjudication.

In reciting the legal principles for an injunction, this court accurately states the inquiries. Those principles supply no per se rule either favoring or proscribing injunctions for patents in any setting, let alone the heightened complexity of standardized technology. This court notes that a patent owner in a standard context “may have difficulty establishing irreparable harm . . . [but] an injunction may be justified where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect.” Majority Op. 72 (citing U.S. Dep’t of Justice and U.S. Patent and Trademark Office, *Policy Statement on Remedies for Standard-Essential Patents Subject to Voluntary F/RAND Commitments*, at 7–8 (Jan. 8, 2013)).

Market analysts will no doubt observe that a “hold out” (i.e., an unwilling licensee of an SEP seeking to avoid a license based on the value that the technological advance contributed to the prior art) is equally as likely and disruptive as a “hold up” (i.e., an SEP owner demanding unjustified royalties based solely on value contributed by the standardization). These same complex factual questions regarding “hold up” and “hold out” are highly relevant to an injunction request. In sum, differentiating “hold up” from “hold out” requires some factual analysis of

the sources of value—the inventive advance or the standardization.

The record in this case shows evidence that Apple may have been a hold out. *See, e.g., Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 914 (N.D. Ill. 2012); Appellees’ Br. 64–65, 72–73; Appellees’ Reply Br. 26–27; J.A. 118884–86. This evidence alone would create a dispute of material fact.

More important, the district court made no effort to differentiate the value due to inventive contribution from the value due to standardization. Without some attention to that perhaps dispositive question, the trial court was adrift without a map, let alone a compass or GPS system. In fact, without that critical inquiry, the district court could not have properly applied the *eBay* test as it should have.

Instead of a proper injunction analysis, the district court effectively considered Motorola’s FRAND commitment as dispositive by itself: “Motorola committed to license the ’898 to anyone willing to pay a FRAND royalty and thus implicitly acknowledged that a royalty is adequate compensation for a license to use that patent. How could it do otherwise?” *Apple*, 869 F. Supp. 2d at 914. To the contrary, Motorola committed to offer a FRAND license, which begs the question: What is a “fair” and “reasonable” royalty? If Motorola was offering a fair and reasonable royalty, then Apple was likely “refus[ing] a FRAND royalty or unreasonably delay[ing] negotiations.” *See* Majority Op. 72. In sum, the district court could not duck the question that it did not address; was Motorola’s FRAND offer actually FRAND?

Furthermore, the district court acknowledged the conflicting evidence about Apple’s willingness to license the ’898 patent: “Apple’s refusal to negotiate for a license (if it did refuse—the parties offer competing accounts, unnecessary for me to resolve, of why negotiations broke

down) was not a defense to a claim by Motorola for a FRAND royalty.” *Apple*, 869 F. Supp. 2d at 914. Yet this scenario, adequately presented by this record, is precisely one that the court today acknowledges may justify an injunction.

In my opinion, the court should have allowed Motorola to prove that Apple was an unwilling licensee, which would strongly support its injunction request. The court states that “the record reflects that negotiations have been ongoing,” Majority Op. 72–73; but, as the district court even acknowledged, Motorola asserts otherwise—that Apple for years refused to negotiate while nevertheless infringing the ’898 patent, *see, e.g.*, Appellees’ Br. 64–65, 72–73; Appellees’ Reply Br. 26–27. Motorola should have had the opportunity to prove its case that Apple’s alleged unwillingness to license or even negotiate supports a showing that money damages are inadequate and that it suffered irreparable harm. The district court refused to develop the facts necessary to apply *eBay* as it should have. Consequently, the case should be remanded to develop that record. For these reasons, I respectfully dissent in part.

United States Court of Appeals for the Federal Circuit

APPLE INC. AND NEXT SOFTWARE, INC.
(formerly known as NeXT Computer, Inc.),
Plaintiffs-Appellants,

v.

MOTOROLA, INC. (now known as Motorola Solutions, Inc.) AND MOTOROLA MOBILITY, INC.,
Defendants-Cross Appellants.

2012-1548, -1549

Appeals from the United States District Court for the Northern District of Illinois in No. 11-CV-8540, Circuit Judge Richard A. Posner.

PROST, *Circuit Judge*, concurring-in-part and dissenting-in-part.

I join the majority opinion with respect to many of the issues discussed therein. However, I respectfully dissent with respect to the proper construction of the “heuristic” claim terms in the ’949 patent. Additionally, I dissent from the majority’s decision to vacate the district court’s grant of summary judgment regarding Apple’s request for an injunction, as I would affirm that decision. As I also depart from the majority’s reasoning while reaching the same result on several other issues, I write separately to explain my views.

I. CLAIM CONSTRUCTION OF THE '949 PATENT

A. “Means-Plus-Function”

The majority concludes that the “heuristic” claim terms in the '949 patent have sufficiently definite structure to avoid means-plus-function treatment. Majority Op. 21. I disagree.

As an initial matter, the majority misstates our law on means-plus-function claiming. Generally speaking, a means-plus-function analysis proceeds in two phases: first, the court must determine whether the claim term is drafted in means-plus-function format such that 35 U.S.C. § 112 ¶ 6 applies. *See Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1361 (Fed. Cir. 2000) (“Before a court attempts to analyze what appears to be a means-plus-function claim limitation, it must first assure itself that such a claim limitation is at issue.”). Only then should the court undertake to construe the disputed claim term by identifying the “corresponding structure, material, or acts described in the specification” to which the claim term will be limited. *Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1097 (Fed. Cir. 2008) (“Because ‘mechanism for moving said finger’ is a means-plus-function limitation, this court must next examine the trial court’s identification of ‘the corresponding structure, material, or acts described in the specification and equivalents thereof.’”).

Although the majority accurately states these legal principles, *see* Majority Op. 9, it fails to faithfully apply them. Rather, the majority’s analysis collapses these two steps into one, and in doing so, it effectively renders the category of non-indefinite means-plus-function claim terms a null set.

The majority correctly states that the proper inquiry in determining whether a claim term is drafted in means-plus-function format is whether the limitation has “suffi-

ciently definite structure.” Majority Op. 10-11. The majority then identifies several ways in which a term may be deemed to have such structure, such as when it has “a structural definition that is either provided in the specification or generally known in the art,” when it “outlin[es] an algorithm, a flowchart, or a specific set of instructions or rules,” or when the specification “describ[es] the claim limitation’s operation, such as its input, output, or connections.” *Id.* at 13-14. By contrast, the majority states, “if the claim merely recites a generic nonce word and the remaining claim language, specification, prosecution history, and relevant external evidence provide no further structural description to a person of ordinary skill in the art, then the presumption against means-plus-function claiming is rebutted.” *Id.* at 16.

In effect, what the majority has done is imported the second step of the analysis (where you define the scope of a means-plus-function claim term based on the corresponding structure in the specification) into the first step (where you identify whether the term is drafted in means-plus-function format). The majority’s analysis implies that so long as a claim term has corresponding structure in the specification, it is not a means-plus-function limitation.¹ But such a rule would render *every* means-plus-function claim term indefinite. Under the majority’s approach, a term would only be deemed a means-plus-function limitation if it has *no* corresponding structure—

¹ Admittedly, the majority suggests that “it is possible to find that a claim limitation does not connote sufficiently definite structure despite the presence of some corresponding structure in the specification.” Majority Op. 10. But the majority’s actual analysis of how to identify a sufficiently definite structure to avoid means-plus-function treatment suggests that the opposite is true.

an absurd result that would eviscerate means-plus-function claiming.²

Applying the proper legal analysis, there can be little doubt that the heuristic limitations are means-plus-function limitations.

² Nothing so clearly demonstrates the majority's confusion on this issue as the cases on which it relies. In support of its view that a court must scour the specification for corresponding structure in order to save a claim term from means-plus-function treatment, the majority cites several cases that were attempting to identify the corresponding structure of undisputedly means-plus-function claim terms. For example, the majority cites *Typhoon Touch Technologies, Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385 (Fed. Cir. 2011), for the proposition that a claim may contain sufficient structure to avoid means-plus-function claiming by reciting an algorithm. Majority Op. 13. However, the claim term at issue in that case was "means for cross-referencing," which no one disputed was a means-plus-function limitation. This court's search for an algorithm to support that claim term was merely an attempt to save the means-plus-function term from indefiniteness. See *Typhoon Touch*, 659 F.3d at 1385-86. The same is true of *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323 (Fed. Cir. 2008), on which the majority also relies. *Id.* at 1340 (evaluating whether "computer-implemented means-plus-function claims" disclosed enough of an algorithm to provide the necessary structure under § 112, ¶ 6). The majority's misreading of these cases is all the more striking because it is the same error the majority accuses the district court of committing in its reading of *Aristocrat Technologies Australia Party Ltd. v. International Game Technology*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Majority Op. 12.

To begin with, it is true that the absence of the word “means” in the disputed claim terms creates a presumption that these are not means-plus-function limitations. *See Inventio AG v. ThyssenKrupp Elevator Ams. Corp.*, 649 F.3d 1350, 1356 (Fed. Cir. 2011). However, it is undisputed that the heuristics limitations recite functions performed by the heuristics (e.g., “determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items”). The relevant question therefore is whether the claim fails to recite sufficient structure for performing those functions, in which case the presumption against means-plus-function treatment would be overcome. *See id.*

As we have previously explained:

What is important is whether the term is one that is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term “means for.” The court in *Personalized Media Communications* drew the pertinent distinction in holding that the term “detector,” although broad, is still structural for purposes of section 112 ¶ 6 because it “is not a generic structural term such as ‘means,’ ‘element,’ or ‘device’; nor is it a coined term lacking a clear meaning such as ‘widget’ or ‘ram-a-fram.’”

Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1360 (Fed. Cir. 2004) (quoting *Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 704 (Fed. Cir. 1998)). Following this, we have found that terms such as “computing unit,” *Inventio*, 649 F.3d at 1359-60, and “soft start circuit,” *Power Integrations, Inc. v. Fairchild Semiconductor International, Inc.*, 711 F.3d 1348, 1365 (Fed. Cir. 2013), connote sufficient structure to

avoid means-plus-function treatment. On the other hand, terms such as “colorant selection mechanism,” *Massachusetts Institute of Technology v. Abacus Software*, 462 F.3d 1344, 1353-54 (Fed. Cir. 2006), and “mechanism for moving said finger,” *Welker Bearing*, 550 F.3d at 1095-97, have failed to recite sufficient structure to avoid means-plus-function treatment.

The term heuristic, which the district court construed as “rules to be applied to data to assist in drawing inferences from that data,” is a vague concept that does not connote known, physical structure in the same way as the terms “computing unit” or “circuit.” Rather, the term heuristic is much more similar to the imprecise terms “mechanism,” “means,” and “element.” Therefore, I would affirm the district court’s conclusion that the heuristic limitations are subject to means-plus-function treatment.

If, as the majority concludes—in my view incorrectly—our precedent dictates that the “heuristic” limitations in the ’949 patent are not subject to means-plus-function treatment, then perhaps it is time to revisit the issue of when claim language invokes § 112 ¶ 6, particularly for computer-implemented inventions. As explained above, I see no real difference between the following two claim limitations:

a next item *means* for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items; and

a next item *heuristic* for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

The first limitation would surely be construed as a means-plus-function limitation. Yet, although the second limitation provides no more real structure than the first, the majority concludes that it is outside the realm of § 112 ¶ 6.

That one minor drafting decision greatly expands the scope of the claim limitation because the claim is not limited to the corresponding structure disclosed in the patent specification. Indeed, under the majority's view, this case provides a stark example of how patent applicants are able to claim broad functionality without being subject to the restraints imposed by § 112 ¶ 6. As interpreted by the majority, the "next item heuristic" limitation in claim 1 covers *any* heuristic used by a touch-screen device to determine that "one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items." And yet, it is undisputed that the patent specification discloses only two such heuristics: a swipe from right to left and a tap on the right side of the screen. In fact, the majority relied on exactly those two heuristics as the necessary "structure" that removed this claim term from the means-plus-function realm altogether. Majority Op. 18.³

Professor Lemley has recently written on the issue of functional claiming in software patents. Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 WIS. L. REV. 905 (2013). He acknowledges this court's recent case law in which we have been "vigilant in

³ Oddly, in defining "heuristic," the majority states that it "does not include all means for performing the recited function." Majority Op. 17. But of course, once this court has ruled that the term is *not* a means-plus-function limitation, that term can indeed be construed so broadly.

limiting software patentees who write claims in means-plus-function format to the particular algorithms that implement those claims.” *Id.* at 926. However, he notes that in many cases involving software patents, we have not treated claims as means-plus-function claims at all, leading to problems of overbroad patents:

The presence of structure in the form of “a computer” or “a processor” or even “the Internet” has led the Federal Circuit to give these claims control over the claimed function however implemented. As a result, software patents have circumvented the limits the 1952 Act places on functional claiming. The result has been a plethora of software patents claimed not on the basis of the technology the patentee actually developed, but on the basis of the function that technology performs. Those claims aren’t limited to or commensurate with what the patentee invented, and they are accordingly the ones that patent plaintiffs tend to assert against defendants whose systems bear little resemblance to what the patentee actually invented. . . . [U]nder this functional claiming rubric the software patents with the least actual technical content end up with the broadest claims: “Its monopoly breadth is a function of its *lack* of technical specification.”

Id. at 926-28 (footnotes omitted) (quoting Christina Bohannan & Herbert Hovenkamp, *Creation Without Restraint: Promoting Liberty and Rivalry in Innovation* 125 (2012)); see also *id.* at 905 (“[P]atentees claim to own not a particular machine, or even a particular series of steps for achieving a goal, but the goal itself. The resulting overbroad patents overlap and create patent thickets.”). I believe Professor Lemley raises valid concerns about this court’s means-plus-function jurisprudence as it relates to computer-implemented inventions. Although the majority here did not base its conclusion on such generic structural

terms as “a computer” or “a processor,” the end result is the same: Apple’s ’949 patent is construed broadly to cover the *function* performed by the heuristics, not the specific heuristics disclosed in the specification. This outcome should compel our court to reconsider when we treat functional claims as means-plus-function claims.

B. Corresponding Structure

Because I would affirm the district court’s conclusion that the heuristics limitations are means-plus-function limitations, I would therefore reach Apple’s alternative argument regarding the corresponding structure for the term “next item heuristic.”

The ’949 patent specification contains two examples of a next item heuristic: a tap on the right side of the touchscreen and a right-to-left horizontal swipe. *See, e.g.*, ’949 patent col. 34 ll. 12-16 (“In some embodiments, the user can also initiate viewing of the next image by making a *tap gesture 1620* on the right side of the image. In some embodiments, the user can also initiate viewing of the next image by making a *swipe gesture 1616* from right to left on the image.” (emphases added)). Nevertheless, the district court rejected the horizontal swipe as corresponding structure for the claimed next item heuristic. The district court reasoned that a horizontal finger swipe fell within the scope of another claimed heuristic—namely the “two-dimensional screen translation heuristic” in the prior claim limitation. The district court did not see how “the same user finger movement [could be] understood to communicate two separate commands.” J.A. 93. Therefore, the court limited the next item heuristic’s corresponding structure to “a heuristic that uses as one input a user’s finger tap on the right side of the device’s touch screen.” J.A. 94.

Apple argues—and I agree—that the district court failed to consider that the heuristics might apply in different scenarios. For example, in describing the photo

album application depicted in Figure 16A of the '949 patent, the specification explains that the user can “initiate viewing of the next image by making a swipe gesture 1616 from right to left on the image.” '949 patent col. 34 ll. 14-16. The specification goes on to explain, however, that “if just a portion of image 1606 is displayed, in response to detecting a finger drag or swipe (e.g., 1626), the displayed portion of the image is translated in accordance with the direction of the drag or swipe gesture (e.g., vertical, horizontal, or diagonal translation).” *Id.* at col. 35 ll. 19-24. In other words, a horizontal swipe will be treated differently depending on whether a full image is displayed or the user has zoomed in on a portion of the image. There is nothing in the claim language that requires that the “two-dimensional screen translation heuristic” and “next item heuristic” apply in the same context. Therefore, I would reverse the district court’s decision to limit the corresponding structure to a finger tap on the right side of the screen, and would reverse the grant of summary judgment of non-infringement for the accused products that use a “swipe” gesture as a next item heuristic.

II. ADMISSIBILITY OF EXPERT TESTIMONY RELATING TO THE '949 PATENT

While I concur in the judgment reversing and remanding the district court’s exclusion of the testimony of Apple’s expert, Brian Napper, based on his erroneous claim construction, I write separately to note my agreement with the district court that Napper’s reliance on the Magic Trackpad was inherently unreliable.

The majority concludes that the district court erred in excluding the testimony of Apple’s expert, Brian Napper, for two reasons. First, the district court’s analysis was based on an incorrect claim construction. Majority Op. 42-43. Specifically, the district court criticized Napper for failing to isolate the value to consumers of the “tap for

next item” functionality, and for failing to consider alternatives to a \$35 million royalty that would enable Motorola to provide this functionality. *See* J.A. 112-14. These criticisms were based on the district court’s conclusion that the ’949 patent’s claimed “next item heuristic” was a means-plus-function claim that was limited to a tap on the right-hand side of the screen to turn to the next item. *See* J.A. 112. The majority determined that this claim construction was erroneous because the “next item heuristic” was not a means-plus-function limitation. Majority Op. 21. As explained above, I would affirm the district court’s construction of the “heuristic” claim terms as means-plus-function limitations, but would reverse the court’s ruling that the scope of the corresponding structure for the “next item heuristic” is limited to a tap on the right-hand side of the screen. Thus, although I arrive at the outcome in a different way, I concur in the majority’s conclusion that the district court’s exclusion of Napper’s testimony must be reversed and remanded on the basis of its erroneous claim construction.

However, unlike the majority, I do not believe the district court abused its discretion in excluding Napper’s testimony as unreliable. The district court determined that Napper’s reliance on the Magic Trackpad to calculate the value of the claimed functionality was unreliable because that product was not a sufficiently comparable benchmark. Specifically, the court said:

Napper’s proposed testimony does not provide a reliable basis for inferring the value even of the vertical scrolling feature. The fact that many consumers will pay more for a Magic Trackpad than for a mouse tells one nothing about what they will pay to avoid occasionally swiping unsuccessfully because their swiping finger wasn’t actually vertical to the screen. Maybe consumers would pay \$2, but there is no evidence they would, or at least none furnished by Napper.

J.A. 115.

It is true that our precedent supports looking to the cost of benchmark commercial products in determining the value of a defendant's infringement. *See, e.g., i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 853-56 (Fed. Cir. 2010). However, as even Apple concedes, the Trackpad "contains none of the function asserted from the '949 patent." Motorola Response Br. 39; *see also* Apple Reply Br. 70 (acknowledging that "[t]hat is true"). Napper therefore began his analysis from a highly questionable starting point. And because the Trackpad does not contain any of the claimed functionality, the discounts Napper applied to get from \$20 to \$2 (supposedly because the Trackpad contains more features than those claimed by the '949 patent) appear to be completely arbitrary. Accordingly, I do not believe the district court abused its discretion in concluding that Napper's proposed testimony failed to provide a reliable basis for inferring the value of the claimed functionality. On remand, I do not think it would be reversible error for the district court to again prohibit Apple from relying on such unreliable testimony.

III. APPLE'S REQUEST FOR INJUNCTIVE RELIEF

The district court granted summary judgment that Apple was not entitled to an injunction for infringement of the '949, '263, and '647 patents. The majority vacates the grant of summary judgment—apparently for all three patents—because of its reversal of the claim construction for the '949 patent. Majority Op. 69-70. I respectfully dissent, and would affirm the grant of summary judgment for all three patents.

Apple argues that it presented ample evidence with respect to the *eBay* factors outlined above to survive summary judgment. I will only address the first injunction factor—irreparable harm—because I view it as dispositive.

Apple argues that it is being irreparably harmed by Motorola's infringement because sales of Motorola's infringing products are causing Apple to lose market share and downstream sales.⁴ But in order to rely on lost market share and downstream sales to show irreparable harm, Apple must provide more than evidence showing merely that Motorola is taking market share from Apple. Rather, Apple must be able to show a causal nexus between the inclusion of the allegedly infringing features in Motorola's phones and the alleged harm to Apple. See *Apple III*, 735 F.3d at 1360-61; *Apple Inc. v. Samsung Elecs.*, 678 F.3d 1314, 1324 (Fed. Cir. 2012) (*Apple I*) ("Sales lost to an infringing product cannot irreparably harm a patentee if consumers buy that product for reasons other than the patented feature. If the patented feature does not drive the demand for the product, sales would be lost even if the offending feature were absent from the accused product.").

The district court found that Apple had no evidence linking Apple's lost market share and downstream sales to the inclusion of the allegedly infringing features in Motorola's phones. See J.A. 152 ("Apple's 'feel good' theory does not indicate that infringement of *these* claims (if they were infringed) reduced Apple's sales or market

⁴ Apple also argues that a finding of irreparable harm is supported by evidence showing that Apple has a policy against licensing competitors to practice the three asserted patents. Apple's willingness to license the asserted patents is, of course, relevant to the second injunction factor—the inadequacy of legal remedies to compensate for irreparable harm. See, e.g., *Apple Inc. v. Samsung Elecs. Co.*, 735 F.3d 1352, 1369-71 (Fed. Cir. 2013) (*Apple III*). However, I am not aware of any cases establishing that a policy against licensing patents can show irreparable harm in the first place.

share, or impaired consumer goodwill toward Apple products.”). Rather, the district court found that “Apple is complaining that Motorola’s phones *as a whole* ripped off the iPhone *as a whole*,” which the court explained was insufficient because “Motorola’s desire to sell products that compete with the iPhone is a separate harm—and a perfectly legal one—from any harm caused by patent infringement.” *Id.* at 153.

Apple contends that its evidence raises a genuine issue as to whether the allegedly infringing features are drivers of consumer demand for Motorola’s products. I disagree. First, with respect to the ’949 patent, Apple cites consumer survey evidence purporting to show that “having a superior touchscreen interface—as opposed to a physical keyboard—drives consumers demand for smartphones.” Apple Br. 65. This evidence, however, says nothing about the specific features claimed in the ’949 patent. *See, e.g., Apple Inc. v. Samsung Elecs. Co.*, 695 F.3d 1370, 1376 (Fed. Cir. 2012) (*Apple II*). The only evidence Apple cites that allegedly relates specifically to “the scrolling heuristics claimed by the ’949 patent” is testimony from Motorola executives about what they thought would be important to consumers. Apple Br. 66. However, we found similar evidence, standing alone, to be insufficient to establish a causal nexus in *Apple I*, explaining:

While the evidence that Samsung’s employees believed it to be important to incorporate the patented feature into Samsung’s products is certainly relevant to the issue of nexus between the patent and market harm, it is not dispositive. That is because the relevant inquiry focuses on the objective reasons as to why the patentee lost sales, not on the infringer’s subjective beliefs as to why it gained them (or would be likely to gain them).

678 F.3d at 1327-28. Accordingly, I agree with the district court that Apple's evidence fails to raise a genuine issue as to whether the features accused of infringing the '949 patent drive consumer demand for Motorola's phones.

As for the '263 patent, Apple cites studies and surveys purporting to show that the claimed invention facilitated the development of popular apps for the iPhone and iPad, which in turn helped make Apple's devices so popular. But Apple does not cite any similar studies for consumers of Motorola's products. Even assuming the evidence shows that the '263 patent is a driver of demand for Apple's products, that does not mean the '263 patent is a driver of demand for Motorola's products. *See Apple II*, 695 F.3d at 1376. Apple's only other evidence for the '263 patent allegedly shows Motorola's subjective beliefs that using "Apple's simplification of streaming technology" would help it gain sales. Apple Br. 67. Again, however, this evidence, standing alone, is insufficient to establish a causal nexus between Motorola's incorporation of the allegedly infringing feature and the alleged harm suffered by Apple. *See Apple I*, 678 F.3d at 1327-28.

Similarly, with respect to the '647 patent, Apple cites evidence that "Motorola itself" identified the patent's "structure-detection feature" as "a high priority and a 'differentiating' feature." Apple Br. 68 (quoting J.A. 29,857). Apple also cites a newspaper article describing the feature as a "cool[] new feature[]" in *Apple's* products. J.A. 29,893. As with the '263 patent, this evidence is insufficient to establish the requisite nexus.

For these reasons, I agree with the district court that Apple's evidence fails to raise a genuine issue as to whether the allegedly infringing features are drivers of consumer demand for Motorola's products. As a result, Apple cannot show that Motorola's infringement has caused it irreparable harm. Apple therefore cannot meet

the *eBay* standard for injunctive relief. Accordingly, I would affirm the district court's grant of summary judgment of no injunctive relief.

IV. MOTOROLA'S REQUEST FOR INJUNCTIVE RELIEF RELATING TO THE '898 PATENT

I concur in the majority's judgment that Motorola is not entitled to an injunction for infringement of the '898 patent. Majority Op. 71-73. However, I write separately to note my disagreement with the majority's suggestion that an alleged infringer's refusal to negotiate a license justifies the issuance of an injunction after a finding of infringement.

As an initial matter, I agree with the majority that there is no need to create a categorical rule that a patentee can never obtain an injunction on a FRAND-committed patent.⁵ *Id.* at 71-72. Rather, FRAND commitment should simply be factored into the consideration of the *eBay* framework. Moreover, I agree that a straightforward application of the *eBay* factors does not necessarily mean that injunctive relief would never be available for a FRAND-committed patent. However, I disagree as to the circumstances under which an injunction might be appropriate.

Motorola argues—and the majority agrees—that an injunction might be appropriate where an alleged infringer “unilaterally refuses a FRAND royalty or unreasonably

⁵ For what it's worth, I would note that the district court *did not* apply a *per se* rule that injunctions are unavailable for SEPs. Rather, Judge Posner expressly noted that injunctive relief might have been appropriate if Apple had “refuse[d] to pay a royalty that meets the FRAND requirement.” J.A. 140. Thus, the majority need not have suggested that the district court erred insofar as it applied such a categorical rule. *See* Majority Op. 71.

delays negotiations to the same effect.” *Id.* Motorola insists that in the absence of the threat of an injunction, an infringer would have no incentive to negotiate a license because the worst-case scenario from a patent infringement lawsuit is that it would have to pay the same amount it would have paid earlier for a license.

I disagree that an alleged infringer’s refusal to enter into a licensing agreement justifies entering an injunction against its conduct, for several reasons. First, as Apple points out, an alleged infringer is fully entitled to challenge the validity of a FRAND-committed patent before agreeing to pay a license on that patent, and so should not necessarily be punished for less than eager negotiations. Second, there are many reasons an alleged infringer might prefer to pay a FRAND license rather than undergoing extensive litigation, including litigation expenses, the possibility of paying treble damages or attorney’s fees if they are found liable for willful infringement, and the risk that the fact-finder may award damages in an amount higher than the FRAND rates. Indeed, as Motorola itself pointed out, we have previously acknowledged that a trial court may award an amount of damages *greater than* a reasonable royalty if necessary “to compensate for the infringement.” *Stickle v. Heublein, Inc.*, 716 F.2d 1550, 1563 (Fed. Cir. 1983). Thus, if a trial court believes that an infringer previously engaged in bad faith negotiations, it is entitled to increase the damages to account for any harm to the patentee as a result of that behavior.

But regardless, none of these considerations alters the fact that monetary damages are likely adequate to compensate for a FRAND patentee’s injuries. I see no reason, therefore, why a party’s pre-litigation conduct in license negotiations should affect the availability of injunctive relief.

Instead, an injunction might be appropriate where, although monetary damages *could* compensate for the patentee's injuries, the patentee is unable to collect the damages to which it is entitled. For example, if an alleged infringer were judgment-proof, a damages award would likely be an inadequate remedy. Or, if a defendant refused to pay a court-ordered damages award after being found to infringe a valid FRAND patent, a court might be justified in including an injunction as part of an award of sanctions.

But regardless, these circumstances are not present in this case, and I agree with the district court that under the facts here, Motorola cannot show either irreparable harm or inadequacy of damages. I would therefore affirm the district court's denial of Motorola's claim for injunctive relief for the '898 patent.

CONCLUSION

For the reasons above, I concur in part and dissent in part.